

Municipal Journal

VOLUME XXXI.

NEW YORK, NOVEMBER 15, 1911

No. 20

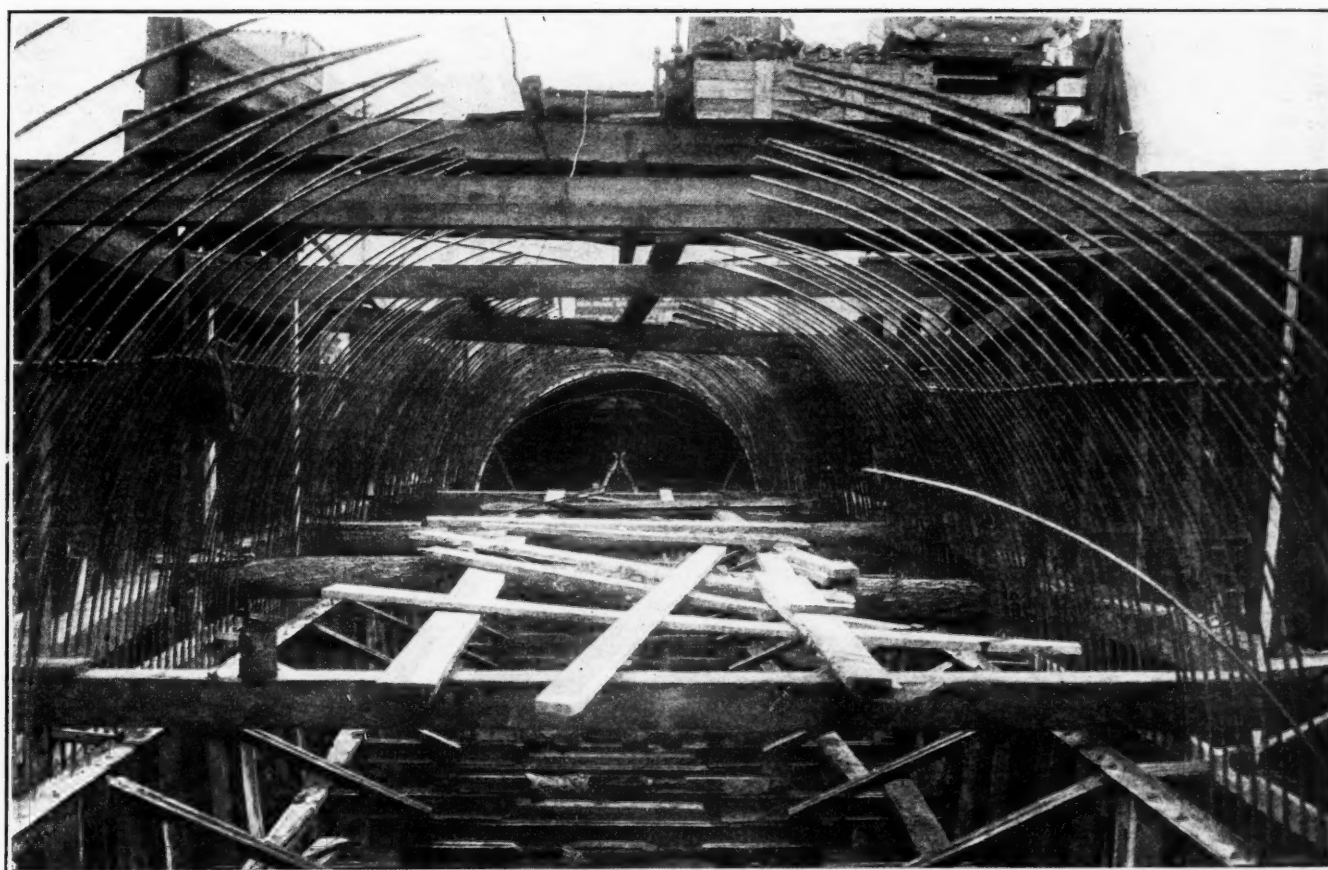


FIG. 1. BASKET-HANDLE SEWER

Reinforcement and Bracing in Foreground—Centers and Traveler in Background

REINFORCED CONCRETE SEWER IN GRAND RAPIDS

Sections Eleven to Seventeen Feet in Size—River Wall and Rectangular Sewer Combined in One Structure—
Subdrain Discharging into Sewer—Expansion Joints

THE sewage of Grand Rapids, Mich., at present discharges into the Grand river at a number of points, which practice has proved to have the disadvantage not only of polluting the river along the water front of the city but also of flooding a number of basements in the manufacturing and business district with back water whenever high floods occur in the river. In order to remedy both these objectionable conditions an intercepting sewer is being constructed along the east side of the Grand river which will receive the sewage from the existing sewers which it intercepts and also from new ones to be constructed, and will discharge this at the southern boundary of the city. In order to prevent high water from backing up the sewer, provision is made for closing the outlet and pumping the sewage into the river whenever necessary.

The southern end of the sewer follows along and in some places just outside of the existing bank of the river, for about 2,400 feet, and throughout this portion there is combined with the sewer a river wall rising about 12 feet above the top of the sewer and built as a continuation of the west wall of the sewer. The northern portion, about 4,600 feet long, lies a short distance back from the river, crossing private right of way, the city market and located for a short distance in a public street. In connection with the construction of the sewer there is considerable work to be done in the way of making junctions with existing sewers, relaying iron pipes to the river which are used as intakes for manufacturing plants, moving buildings, relaying street pavements, etc. At one point foundations for boat cranes are provided along the wall.

At the southern or outlet end the sewer is rectangular in cross section, with a uniform inside height of 12 feet and a width varying from 13 to 17 feet. The northern portion is of basket-handle shape, the upper half being a semicircle with radii varying from 5 ft. 6 in. to 6 ft. 6 in., the bottom sloping both ways toward the center with a fall of $\frac{1}{2}$ -inch to 1 foot, and having at each junction of the sides and bottom a flat fillet making an angle of 30 degrees with the horizontal. All sections of the sewer are reinforced along the inside of the bottom and of the top arch or slab, and also on the outside of the top arch and of the side walls. In the southern section the west wall, which also serves as a river wall, is reinforced on both inside and outside. This wall is 20 inches in thickness throughout, with a coping at the top overhanging 4 inches.

In basket-handle sections the arch wall varies in thickness, with the different diameters, from 10 to 12 inches at the crown and from 12 to 14 inches at the springing line. The thickness of the bottom at the center is the same as the crown of the arch; the underside of the bottom being made a horizontal plane. In both classes of sections the sewer rests upon a gravel foundation 4 inches thick at the outer edges and 6 inches at the center, which connects with the gravel which fills a sub-drain trench 24 inches wide and 18 inches deep.

A 10-inch vitrified pipe is carried under the center of the sewer throughout its entire length to serve as a sub-drain. This drain is of sewer tile with joints lacking $\frac{1}{2}$ -inch of being "home" and filled with an oakum gasket. An unusual feature is a provision for permitting these sub-drains to discharge into the sewer when the ground water rises higher than mid-height of the sewer. This consists of a T inserted in the sub-drain at each manhole, from which, by lengths of straight and curved pipe, a branch is carried horizontally to and vertically up the outer side of the sewer and through the wall of the sewer at its mid-height.

The concrete used in the construction consists of Portland cement, sand and gravel; the last named material being plentiful in that vicinity. It is specified that the sand shall pass a sieve having holes $\frac{1}{4}$ inch square and that not less than 50 per cent shall be retained on a No. 30 sieve. Also that the gravel shall be screened by passing over a sieve having holes $\frac{1}{4}$ inch square and that the largest particles shall not exceed $1\frac{1}{2}$ inches in largest diameter; the particles being so graded and

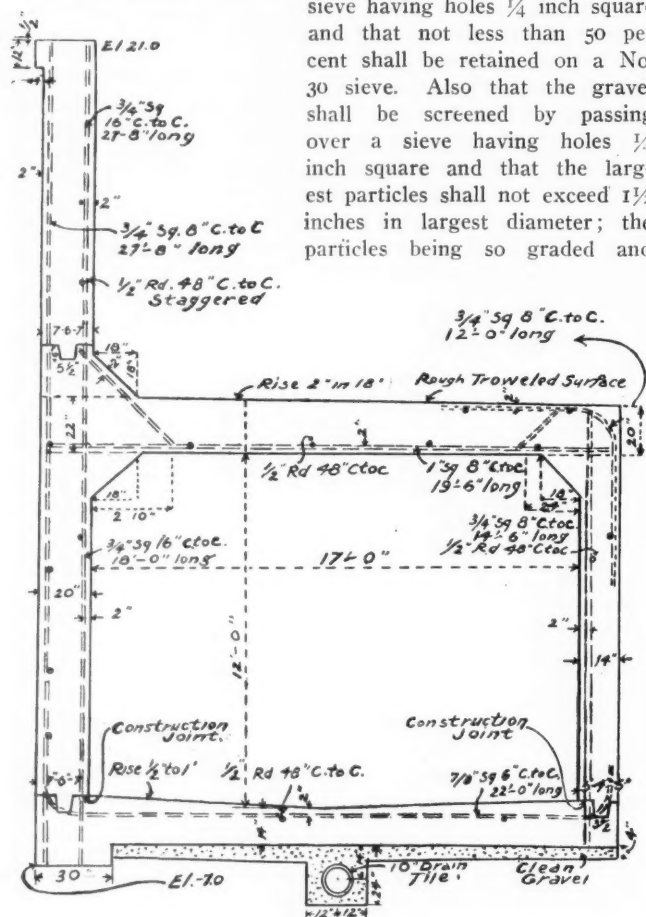


FIG. 2.—RIVER WALL SECTION AT PUMPING STATION

proportioned from fine to coarse as to reduce voids to the smallest practicable amount. It is intended that the concrete be so proportioned that the cement shall overfill the voids in the sand by at least 5 per cent, and that the mortar shall overfill the voids in the stone or gravel by at least 10 per cent. The specifications also state:

Concrete shall have the following proportions, subject to such variations as necessary, determined as above. Grade I concrete shall consist of 1 part Portland cement, $2\frac{1}{2}$ parts sand and 5 parts gravel or broken stone, and shall be used in all reinforced work. Grade II concrete shall consist of 1 part Portland cement, $3\frac{1}{2}$ parts sand and $6\frac{1}{2}$ parts gravel or broken stone, and shall be used where the dock line is carried below the elevation shown on drawings, in piers and footings, around intake pipes, and in backing up reinforced concrete or other work where shown on plans.

Ninety-six pounds of cement is assumed to measure 1 cubic foot; the sand and gravel are measured loose as shoveled. The concrete is mixed by machine and is used fairly thin for all reinforced work, which embraces the greater part of the construction. It is provided that the concrete be placed in layers not more than 18 inches thick in the walls nor more than 6 inches thick in the top and bottom of the sewer; and that it be thoroughly spaded and tamped, especially around the reinforcing steel.

The sewer is built in sections, the length of the section being limited to the amount of concrete which can be placed in one day's work, so that each section may be a monolith. In the river wall the work is carried up monolithic from the top of the sewer to the top of the wall in such lengths as can be constructed in a day's run. No provision is made for expansion or contraction of the basket-handle section, which is well back from the river and will be covered with at least 3 feet of earth and protected from temperature changes. Joints between construction sections at this point are made by leaving grooves in the end surface of each section midway between the exterior and interior surfaces of the sewer; which grooves are filled with a corresponding tongue of concrete in constructing the following section. In the river wall section of sewer and in the wall itself expansion joints are left at intervals of 50 feet. These are constructed by the use of steel plates $\frac{1}{4}$ -inch thick and 24 inches wide set so as to be imbedded with one-half their width in each of two adjoining sections through-

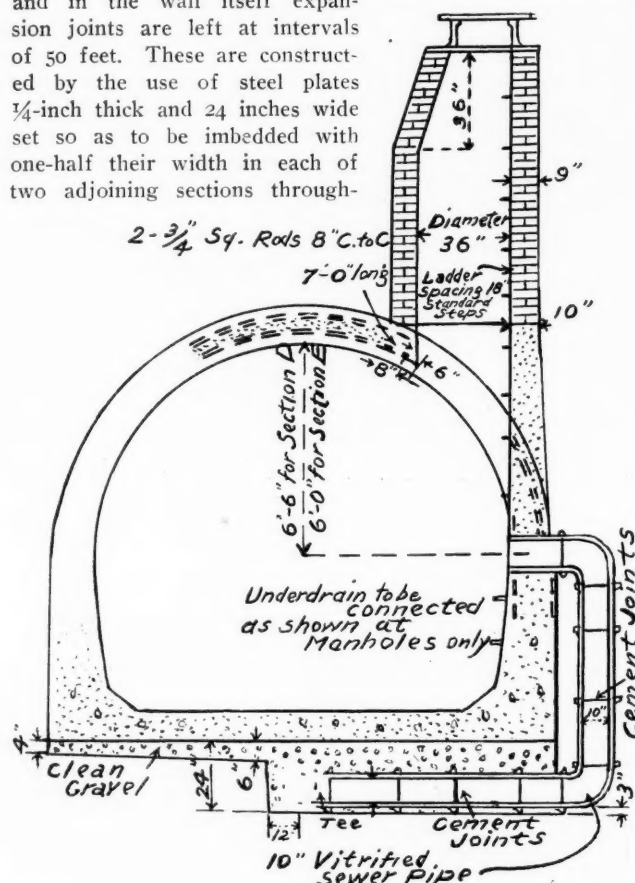


FIG. 3.—BASKET-HANDLE SECTION, SHOWING MANHOLE AND SUB-DRAIN CONNECTION

out the entire shell of the sewer and height of the wall. These plates are oiled before shipment and also just before being placed in the wall, the idea being that, when the sewer or wall contracts in length, thus leaving an opening between adjoining sections, the plate shall span this opening, being free to move in and out in the slot in the concrete in which it lies.

Provision is also made for longitudinal construction joints in the sewer shell. Throughout the entire length of the sewer a tongue and groove joint is formed where the side walls rest upon the bottom slab of the sewer. The side walls and arch of the basket-handle section are continuous, without such joints. In the rectangular sections, a similar joint is made between the top of that portion of the river wall which forms the west side of the sewer, and that which extends above the top of the sewer. The reinforcement is continued through all these joints so that the sections are bound together.

The reinforcing bars are mostly deformed square bars $\frac{1}{2}$ to $\frac{3}{4}$ inches thick in the various portions of the structure. They are required to have an elastic limit of 50,000 pounds, an ultimate tensile strength of one and one-half times the elastic limit, an elongation in 8 inches of not less than 10 per cent, and to bend without fracture to an angle of 90 degrees around a radius of four times the thickness of the specimen. They are placed to lap at least 30 diameters and all laps and crossings of bars are fastened with soft annealed wire.



FIG. 4.—BACK OF RIVER WALL AND TOP OF SEWER
Showing steel forms and bracing of same.

The construction is all in soft material, most of it sand or gravel, in many places overlaid with muck, and carrying more or less water. Most of the heavier excavation has been done with a steam shovel. Sheet piling has been necessary in the deeper portions of the trench, which varies from 20 to 23 feet to the flow line over a considerable portion of the length, although in places the depth is only 6 or 8 feet. For sheet piling the contractor is using ordinary channel steel 15 inches by 3 inches, adjacent lengths being laid facing in opposite directions and with the sides interlocking. While this does not make a water tight sheeting, it makes a very substantial one which does not batter with driving, and seems to keep out even the water-bearing sand very effectively. The rangers and braces are of timber, as shown in the accompanying illustration. Blaw forms are used for the arch and side walls of the basket-handle section, a timber frame being employed to form the fillets at the lower angles. The arch forms are supported and carried forward by travelers running on a track in the bottom of the sewer. Blaw forms are also used in the rectangular construction and for the river wall, consisting of

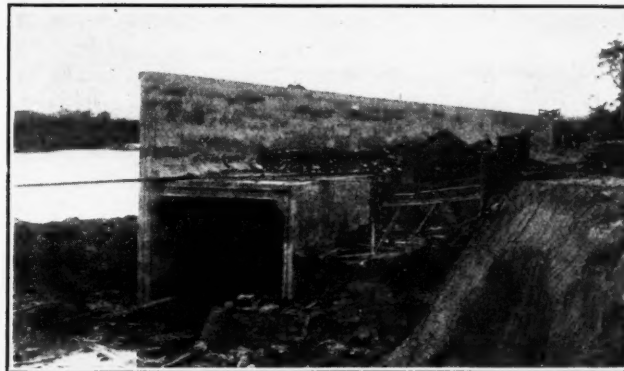


FIG. 5.—LOWER END OF SEWER AND RIVER WALL

angles and channels fastened together with hard wood keys. The form for the upper part of the river wall is tied to the form for the easterly wall of the sewer, as shown in Figure 4. The inner and outer forms of a wall are tied together by bolts passing through the wall, these bolts being wrapped in oiled paper, which permits them to be readily withdrawn after the concrete has set; the holes being then filled with mortar. The forms for the river wall are handled in sections 10 feet long by means of a Browning Engineering Company derrick with a 40-foot boom, which travels on a track laid on the ground a few feet from the sewer and about level with its top. This derrick is also used for handling the concrete, carrying it from the mixer in bottom dump buckets (known as the "Lake-side" bucket, manufactured by the Ohio Ceramic Engineering Company of Cleveland), and depositing it directly in the forms. A Chicago concrete mixer is used.

In constructing the northern section of the sewer a Chicago mixer, size 29, is mounted, with its engine, coal box, etc., on a traveler which spans the trench and runs on rails placed on the surface on either side of the trench. The materials for the concrete are raised from the surface to the mixer by an elevator connected with the same. The traveler pulls itself backward and forward by means of a cable fastened at the two ends of the work and passed twice around a drum which is carried by the traveler.

Although the sewer is being constructed near the river and even in the edge of the same, comparatively little trouble is being experienced from ground water. At the outlet end the soil from the excavation was thrown into the river to form a cofferdam around the work, and one centrifugal pump finds no difficulty in keeping the excavation dry. As a precaution against floods, the lower end of the sewer has been completely stopped with cement bags filled with sand, as may be seen in Fig. 5.

In backfilling trenches whose sides have been sloped rather than sheet-piled, it is required that the side slopes be cut into steps with vertical and horizontal faces as the backfilling is placed. The sewer is to be covered with earth to a minimum depth of 3 feet, with side slopes of $1\frac{1}{2}$ to 1 where this requires an embankment; the earth being tamped in layers not more than one foot thick.

GATHERING LEAVES FROM STREETS

THE city of East Orange, N. J., is abundantly provided with shade trees, thanks to its efficient Shade Tree Commissioner; and is now experiencing possibly the only drawback to this, in the large amount of leaves which are now littering the streets. In gathering these, City Engineer W. D. Willigerod has adopted a little wrinkle which may be of service to others. The leaves are swept into the gutter by the ordinary machine sweeper, and are then swept by hand into bags and either burned or disposed of for bedding and fertilizer. When sweeping them into the bags, a light iron hoop is inserted in the mouth of the bag to hold it open and thus permit the leaves to be swept in readily by means of a hand broom, instead of the ordinary method of putting them in with the hands.

GARBAGE REDUCTION AT COLUMBUS

Operation of Municipal Plant of Eighty Tons Capacity— Garbage Loading Station in City—Financial Record for Six Months

THE garbage reduction plant built for the city of Columbus, O., and the only one in the country both designed and built for a municipality, was described in our issue of March 16, 1910, when it was nearly completed. The report of Irwin S. Osborn, engineer in charge of the design and construction of the plant, covering practically the first year of operation, or from July 20, 1910, to July 1, 1911, has been published and we present an abstract of this report below.

A review of the history of the plant and a brief description of it is given, which states, among other things, that the city advertised early in 1908 for bids for the construction of a reduction plant to be built in accordance with specifications issued by the city, but no bids were received. The specifications were at once revised and two bids were received, but both rejected, because the lowest, \$230,000, was considered too high. The Board of Public Service then decided that better results could be obtained by employing an engineer to design and construct the plant so they could award contracts on separate parts of the work, and Mr. Osborn was employed for this work in July, 1908.

A reduction plant was designed with a capacity of disposing of 80 tons of garbage in 12 hours; this capacity being considered sufficient to take care of the future growth of the city for a number of years and at the same time provide for any emergency in case of breakdown. Contracts for machinery were awarded in November, 1908, and this and the buildings were nearly completed by the latter part of 1909, when winter shut down the work. The plant was completed and placed in operation on July 20 of the following year and has been in continuous operation ever since.

At the same time the plant was being constructed, collection equipment and various buildings were being provided. On a six-acre plot in a comparatively central location were built a garbage loading station, garbage collection stable, railroad sidings, dog pound, night soil station, street repair yards, wagon sheds and blacksmith and repair shop; while work is now under way for the erection of a stable for the street cleaning department.

The dog pound consists of a small one-story frame building with an office in front and stalls for keeping dogs until released or otherwise disposed of. The nightsoil station consists of a small one-story brick building containing a concrete basin in which the wagon tanks discharge their contents, which is then diluted with water and flushed into the sewer. The stable is a two-story building 60 feet wide by 200 feet long. Stalls are arranged in rows across the building, with a ten-foot passage aisle at the rear and a four-foot feeding aisle at the front. A center aisle 8 feet wide runs the entire length of the building. The stable has a capacity of 106 horses, and the ground room also contains harness rooms and the office of the stableman. The second floor is used for storage of feed and also contains the office of the superintendent of collection and a locker and bathroom for the men.

The garbage loading station consists of a two-story brick building 40 feet wide by 90 feet long, with railway tracks extending through it. The wagons are driven up an incline driveway onto the second or loading floor which is about 15 feet above the railway track. The wagon is backed up to a bumping rail and the front end of the wagon body elevated with power hoist, thus discharging the garbage into the car below. The building houses two cars at one time when the large double track doors are closed, so that all work of loading is done inside the building. Four garbage cars were purchased for transporting the garbage to the disposal plant. These cars were especially made, having a steel semi-circular body set on

trunnions so that they can be turned to discharge the load. The cars have a capacity of 80,000 pounds or 1,400 cubic feet of garbage.

Thirty-four garbage wagons were purchased for use in collection. These wagons were built according to the city's specifications and consist of rectangular steel bodies mounted on heavy running gears. The wagons are provided with spring seat, and canvas covering put on in sections. The sectional canvas cover makes it necessary to uncover only a part of the wagon at a time and at the same time does away with the noise caused by metal covers. The wagons have a capacity of $2\frac{1}{2}$ cubic yards and the net weight of the loads varies from $1\frac{1}{2}$ to 2 tons.

The loading station and other buildings described above are placed at a comparatively central point in the city, on the Scioto River. The reduction plant is located about $1\frac{1}{2}$ miles south of the city limits, also on the bank of the river. The plant consists of four buildings—the green garbage or unloading building, the main or reduction building, the office and a small stable. The machinery in these buildings was described at greater or less length in the article of March 16 previously referred to. A car of garbage, when delivered at the plant, is weighed on railway track scales and then run into the green garbage building on a railway siding which extends through it. The body of the car is then turned on trunnions by means of power hoists and the contents of the car discharged onto the floor below. Here the free water is drained off through a gutter covered with perforated plates which extends the full length of the building. The water so flowing off is drained into a catch basin from which it is discharged into grease separating tanks. The garbage is sorted and shoveled into a 24-inch scraper conveyor which extends the full length of the green garbage building.

Connecting the green garbage building with the main building is an inclined truss which carries the conveyor to the top of the latter building, where it discharges the garbage through swivel spouts directly into the digestors. When the garbage has been cooked in the digestors it is discharged through a large valve into a receiving hopper and from this to a roller press. The vapors which arise from the mass when dropped into the hopper are conducted to a condenser which in turn is connected to a vapor tight steel hot well. The time required in cooking varies with the quality of garbage, but averages from 6 to 8 hours with the steam at from 60 to 70 pounds gauge pressure as it enters the digester.

After passing through the presses the compressed material is carried to the drying department, where it is fed into a revolving cylindrical dryer. After being thus dried the material is passed through a revolving screen and the screened tankage is placed in vacuum mixing driers, together with the concentrated syrup from the evaporator. The dry fibrous material acts as a filler and enables the moisture in the syrup to be driven off. The addition of the syrup to the fibrous tankage provides a higher grade of tankage from a mechanical and fertilizing standpoint. When this mixture has been dried it is conveyed by a spiral conveyor and an elevator to the third floor where it is stored until shipment.

The water and grease from the press flow through a conduit to the grease separating room. The grease drained off from the separating tanks is heated in the treating tanks in order to separate out the impurities, and is then pumped into storage tanks ready for shipment.

The tank water drawn off from the grease separators is evaporated so as to recover the five to seven per cent of solids in solution. An evaporator is used consisting of three pans, capable of concentrating 1,500 gallons of tank water per hour from 7 degrees Be. to 22 degrees Be., using exhaust steam at five pounds pressure and a vacuum of 25 inches on the third pan. The concentrated syrup is drawn off by a magma pump and discharged into a storage tank, to be added to the tankage as previously described. The feed pump to the evaporator is provided with a neutralizing gear and connected to a tank con-

taining a neutralizing solution; thus securing the mixture with the tank water of the amount of solution required to neutralize the acid so as to prevent its attacking the metal.

The city now has under construction a percolating plant to be used in extracting grease from the dry tankage, as only about one-half of the available grease is recovered by means of the press. The percolating plant will consist of an extractor, vaporizers, condensers and storage tanks.

The electric current for both lighting and power is furnished by the municipal lighting plant at 1½ cts. per kw.h. An independent motor is connected with each power-driven unit and operated with 440-volt, 60-cycle, two-phase current. The boiler plant consists of three horizontal tubular boilers 78 inches in diameter by 20 feet long. Two of the boilers are in regular service and the third is in reserve.

The cost of the collection equipment and of the reduction plant was as follows:

COLLECTION DEPARTMENT

Loading Station site.....	\$10,136 40
Loading Station	14,101 64
Collection Stable	41,796 55
Trestle and driveway.....	2,153 10
Grading, fill, electric wiring.....	2,379 54
Garbage cars	7,504 00
Garbage wagons	7,151 10
Railway Siding	3,161 60
	<hr/>
	\$88,443 93

REDUCTION PLANT

Levee	\$9,711 72
Buildings, grading, etc.	81,267 05
Reduction machinery	59,866 00
Power equipment	21,356 70
Railway tracks	3,342 80
Conveying machinery	9,316 22
Electric wiring	3,670 99
Non-Conducting covering	1,010 75
	<hr/>
	\$189,542 23

MISCELLANEOUS

Office and advertising.....	\$1,401 18
Engineering	16,143 48
	<hr/>
	\$17,544 66
Total	<hr/>
	\$295,530 82

As during the first six months of operation, that is the last six months of the year 1910, the works were new and the men unacquainted with operating them, Mr. Osborn has taken the first six months of 1911 as more representative of what results can be obtained. During this period accurate records were kept of the operation and the cost computed for each part of the operation. During the first half of 1911 the amounts of garbage disposed of each month were as follows:

January	1,063.08 tons
February	977.64 tons
March	1,114.75 tons
April	1,175.22 tons
May	1,364.05 tons
June	1,371.39 tons
Total	<hr/>
	7,066 13 tons

The above includes 94 dead horses and 9 cows,
The plant was operated 155 days, and the average tonnage per day was 45.59.

As the plant has a capacity of 160 tons of garbage in 24 hours, the disposing of 45.59 tons per day was done ordinarily during one eight-hour shift. During the second shift only such work was done as required more than eight hours. If the tonnage of garbage was sufficient to operate the plant at full capacity the cost per ton would be decreased, as the same number of men are required to operate the machinery irrespective of the tankage to be disposed of.

The receipts of the works from the products were as follows:

206.48 tons of grease	\$21,413 92
1,132.03 tons of tankage	10,338 42
62 hides	253 90
Miscellaneous	1 50

Total \$32,007 74

In addition to this there was on hand June 30, 1911:

43 tons of grease @ \$100.00.....	\$4,300 00
156.34 tons tankage @ \$10.00.....	1,563 40
34 hides @ \$4.00.....	136 00

Total \$5,999 40

The inventory of January 1, 1911, was:

68.44 tons grease @ \$108.00.....	\$7,391 52
100 tons tankage @ \$10.00.....	1,000 00

Total \$8,391.52

This makes the net receipts from by-products recovered from 7,066.13 tons of garbage to be \$29,615.62.

Each carload was analyzed for determining both the fertilizing elements (on which the price per ton is based) and also the percentage of grease left in the material, these analyses showing this percentage to be approximately ten. It is believed that if the percolating plant which is now under construction had been in operation, a recovery of 8 per cent of grease would have been made, which would have amounted to 95 tons, valued at \$9,500. The operation of the percolating plant would have required an additional expense of \$2,000, leaving a net revenue from this plant of \$7,500. The total cost for the collection of garbage for the first six months of 1911 amounted to \$17,794.99; so that, with the percolating plant operating, the receipts from garbage would have been \$4,313.44 over and above the cost of collection and disposal.

The total expenditures for the six months were as follows:

Supervision and payrolls.....	\$9,724 93
Coal	2,349 75
Electric power.....	843 90
Repairs and renewals	849 24
Supplies	548 13
Office expense	185 78
Miscellaneous	191 84
Unpaid bills July 1st, 1911.....	839 52
	<hr/>
	\$15,532 19

Inventory Coal and Supplies July 1, 1911

250 tons coal @ \$1.30.....	\$325 00
Pipe, fittings, supplies, etc.....	200 00
	<hr/>
	525 00

Total net cost of disposal..... \$15,007 19

This leaves a difference between receipts and expenditures of \$14,608.43. As 7,066.13 tons of garbage were disposed of, this shows a net revenue per ton of garbage of \$4.19, a net cost per ton for disposal of \$2.12 and a profit per ton of \$2.07.

The figures given are those contained in the report, and do not tell the whole story. The expenditures include supervision, but do not include interest or depreciation on the plant. If we assume a 10 per cent depreciation, and 6 per cent to cover interest, insurance, etc., we have fixed charges for the six months of about \$15,000, which would be sufficient to wipe out the profit above calculated and show a loss of about \$400.

In the above we have not included any charges for collection, the expenditures for which were stated to be \$17,795 for the six months. Assuming 10 per cent to be charged for interest, depreciation, etc., we have these amounting to \$4,422 for the six months, or a total cost of collection of \$22,217, or \$3.14 a ton. It would seem probable that, should the amount of garbage increase to 75 or 80 tons a day and the percolator be added to the plant, the receipts from the plant might be increased to approximately \$60,000, while the expenditures would not exceed \$20,000, changing the loss of \$400 to profit of more than \$24,000 for the six months. At the same time the total cost of collection would increase to about \$36,000.

The last part of this calculation, in which allowance is made for fixed charges, was not included in Mr. Osborn's report, but was added by us as showing more correctly the actual cost of treating the garbage.

HIGH-PRESSURE GAS DISTRIBUTION

Installation at Flushing, L. I.—Steam Driven Gas Compressors—Lower Cost of High-Pressure Gas—Regulating Service Pressure

In recent years considerable progress has been made in the high-pressure system of gas distribution, which should be especially interesting to growing cities and towns facing the problem of extending their gas-supply service.

In the high-pressure system the gas is generated in the same way as in the low, and then by compressors its pressure is raised from about 4 inches of water ($1/7$ pound per square inch) to 10 to 40 pounds and delivered to the mains. No district holders are required.

There are several companies supplying high-pressure gas in the United States and in England. A recent installation is that of the New York & Queens Gas Company, Flushing, L. I., which shows how a low-pressure system can be cheaply and efficiently transformed into a high-pressure system. For the information contained in the following description of this plant we are indebted to Mr. M. H. Spear, secretary and manager of the company.

The district served by the New York & Queens Gas Company is a large and growing one, and the demands on the equipment had reached such a point that it was necessary either to lay more or larger distributing mains, or to install another district holder, or by some other means increase the pressure to supply the distant consumers. A large drop in pressure was shown by gauge readings, for at the works there was a 5-inch water pressure, but at Bayside, seven miles away, there was only $1\frac{1}{2}$ inches.

As the cost of compressors was small compared to that of a holder it was decided to install four miles of high-pressure

main and deliver the gas at $3\frac{1}{2}$ inches into the low-pressure on the line feeding Bayside so it would increase the pressure both ways.

A small compressor house, Fig. 1, was built at the works and two Laidlaw-Dunn-Gordon duplex steam-driven gas compressors, Figs. 2 and 3, were installed. The larger one has 12-inch steam and 16-inch gas cylinders, with a stroke of 12 inches, uses steam at about 100 pounds and compresses the gas to 50 pounds, while the smaller compressor has 8-inch steam and 14-inch gas cylinders with an 8-inch stroke.

The compressors are connected so that either can be run independently of the other or both at the same time. The small one is generally in service during the day, when the load is comparatively light, and the large one from 5 o'clock in the afternoon until 10 at night, or, should the load be exceptionally heavy, both can be used.

Gas enters the compressors at a pressure of 5 inches of water and is discharged into the mains at 30 pounds per square inch at the rate of 40,000 cubic feet per hour. Before entering the mains it passes through controlling and check valves, the latter preventing the gas from returning to the compressors.

The distributing system comprises four miles of high-pressure mains and 84 miles of low. The former are of 4-inch wrought-iron pipe, having recessed screwed couplings with the threads covered with red lead and shellac before making up. Every 400 feet an expansion coupling is inserted and at every 1000 feet a gate valve. The fittings were furnished by the Dresser Manufacturing Company, Bradford, Pa., and the valves were made specially by the Eddy Valve Company, Waterford, N. Y., and the Ludlow Valve Manufacturing Company, Troy, N. Y., as ordinary valves are not gas-tight at high pressure.

At the end of the four miles the 4-inch line is connected to a 20-inch line which is part of the low-pressure system. Gas is introduced into the latter through two Reynolds regulators set

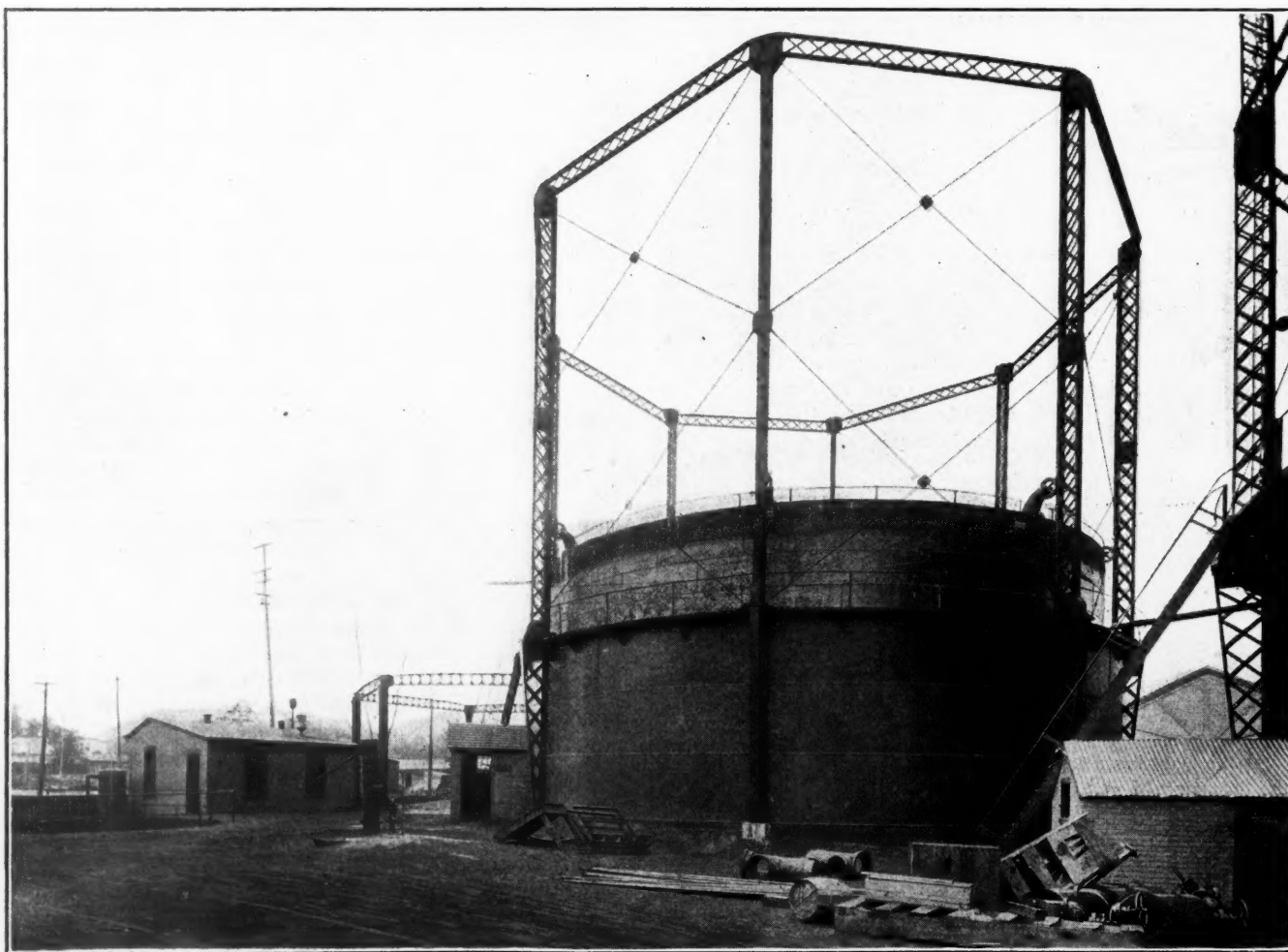


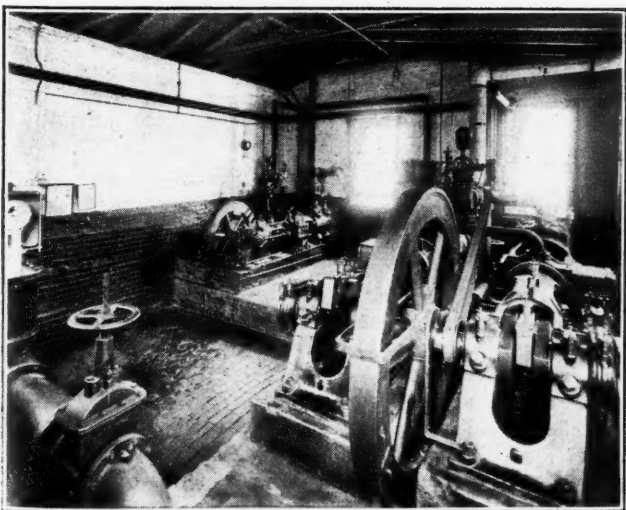
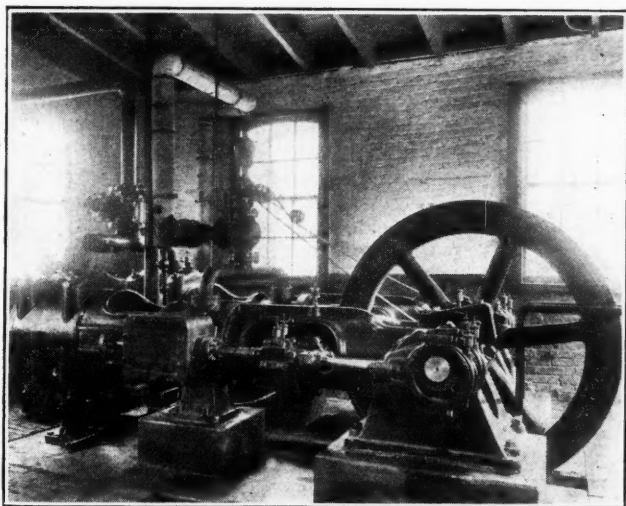
FIG. 1. SMALL COMPRESSOR HOUSE AND OLD GAS HOLDER

in a manhole in the street. From the high-pressure mains consumers are fed through service pipes, in each of which before entering a house is a regulator for reducing the pressure. In the low-pressure part of the system no regulators are required, the usual cocks only being fitted. The compressor plant and the high-pressure system have given perfect satisfaction since their installation.

High-pressure gas has many advantages over low. It does away with the unsightly district holders and their greater initial and maintenance costs as compared to compressors. Smaller pipes can be installed, and as a distributing system covers many miles, often several hundred thousands of dollars can be saved on the piping. The cost of compressing gas at the New York & Queens Gas Company does not exceed two cents a thousand cubic feet.

When the compressors stop forcing gas into the mains the pressure at the burner does not fall and less light result; for, even if the pressure dropped several pounds, the regulators at the service pipes would automatically take care of the change and supply the gas at a constant pressure to the consumer. For example, a drop from 40 pounds to 1 pound in the mains would not cause a variation of more than 1-10 inch at the burner, which is practically negligible. Even when gas is used at 30 pounds no change is made in the candle-power; in fact, for lighting, heating and running gas engines a higher pressure could be used than is at present commonly employed, and more satisfactory results could be obtained.

District holders, which are often located in a residential section of a city, are very unsightly. With the high-pressure system they are not required, but only a small compressor house, the size of which compared to a holder is shown in Fig. 1. This is an advantage which will be appreciated by all citizens who take an interest in the appearance of their city.



FIGS. 2 AND 3.—STEAM-DRIVEN GAS COMPRESSORS

WATER WORKS PUMPING MACHINERY

Reserve Units for Peak Loads—Relative Capacity—Low Efficiency Pumps Often Most Economical—
Practical Illustration

By WILLIAM WESTERFIELD, C.E.

It often occurs that the most efficient machine is not the most economical one. This will depend upon the conditions existing in the plant where it is to be installed. Lord Kelvin laid down the rule in electrical engineering practice—which holds equally good when applied to hydraulic engineering—that in the selection of an electrical conductor to carry a given load in amperes, we should stop at the point where the interest and depreciation charges on the difference in cost between the smaller and larger conductor balances the loss due to drop. I have not used the exact language in which this rule is stated, but the sense is not lost in my manner of stating it, and at the same time I have tried to state it in such manner as will make its application to our present problem more clear.

In every plant serving cities and towns with water it is of the utmost importance to the public that the plant be equipped with duplicate or reserve units, which may be put in service in case of breakdowns or shutdowns for ordinary repairs or adjustments, and thus the demand at all times be met in a satisfactory manner. This demand should not be taken as the *average demand*, but as the *maximum demand*. It is of little benefit to have equipment that will meet the average demand, if it cannot be depended on to meet the maximum demand.

As a rule, in a plant supplying, say 4,000,000 gallons per day, the maximum demand, or the maximum rate at which water must be delivered to the mains will not fall far short of five and a half or six million gallons. The maximum demand will occur during the hours from, say, 7 o'clock in the morning to 7 or 8 o'clock in the evening, while the lowest demand will occur between the hours of 7 or 8 o'clock in the evening and 7 o'clock in the morning.

In order to make absolutely certain that we shall at all times be able to give good service, it is necessary that we have duplicate or reserve units. In a large plant the necessary reserve capacity may be less than in the smaller one. In a plant supplying, say, 4,000,000 gallons per day, it would probably be most satisfactory to have two units, each having a capacity of, say, 5,000,000 gallons. If the plant should be divided into three units it would be necessary during the time of maximum demand to operate two of them, and in that case it would be necessary, if efficiency be desired, to install high-duty units. If two units are installed it is possible, and I believe in most cases advisable, to install one high-duty pumping engine and one low duty. The larger units operate with better efficiency and require less attention, less oil, less floor space, and also cost less to install for a given total capacity.

In one city of 50,000 inhabitants, a 3,000,000-gallon triple-expansion pumping engine of the rotative type has been in operation for five years, and during this time it has not been out of service continuously for a greater period than three hours. In connection with this pumping engine the installation consists of a reserve of the same capacity in the form of a low-duty, direct-acting compound condensing unit. It has not been necessary to operate this last-mentioned unit more than just sufficient to keep it in good condition and ready for service. I will mention the fact that the triple-expansion, high-duty pumping engine referred to is in first-class condition, due to the fact that it has been cared for by a first-class engineer. For a plant of this size it must appear that a combination of this kind gives economy of investment, combined with the highest possible efficiency and *reliability*. In many plants supplying water from streams, it is the practice to use one unit for pumping water from the stream into the filters or reservoirs and another unit for taking the water from the filters and delivering it to the mains. In a plant designed in this manner it would be advisable to have two high-duty units and one low-

duty reserve unit. They should be so connected to the piping system that any one unit may be used for pumping from the stream or other supply to the filters or reservoirs, or from the reservoirs to the city mains.*

Let us assume that we are to install a plant to supply a demand for 4,000,000 gallons per day. A 5,000,000-gallon pumping engine, liberally designed, will care for the maximum demand. Assuming that we are to pump from a stream or other source to reservoirs or filters, and thence to the mains, we would install, say, two high-duty pumping units of the rotative triple-expansion type, and one direct-acting compound low-duty, all of the same capacity. It may be asked, why not install three high-duty units? In the hands of a competent engineer it would not be necessary to operate the low-duty pump or the reserve pump, in any event, more than an average of ten to fifteen days each year.

Applying the rule I have called attention to, we will take the difference in the cost of operating the low-duty and the high-duty units for, say, twenty days each year, and we will set that off against the interest and depreciation on the difference in cost of the low-duty and the high-duty units. We may assume that the approximate cost of a 5,000,000-gallon triple-expansion pumping engine of the type mentioned would be \$20,000, while that of the low-duty unit would be approximately one-fourth of this amount. The difference in cost would therefore be \$15,000, and interest and depreciation at 12 per cent. on this amount would be \$1,800.

We will assume that the triple-expansion high-duty unit will indicate 100 hp, delivering its rated amount against a given pressure, and that it will develop 1 hp with 15 lb. of dry steam per hour. This will require, for the unit operating under this condition, 1500 lb. of steam per hour, and assuming 6 lb. of water evaporated per pound of fuel, 250 lb. of coal or other fuel would be required each hour.

The low-duty pump of the type referred to would require, while doing the same work and running condensing, three times the amount of steam (approximately), and consequently instead of 250 lb. of fuel we would require, under the same evaporating conditions, 750 lb. per hour, or 500 lb. more per hour than would be required for the high-duty unit. This would amount to a difference of 6 tons of fuel per day. Assuming that we would operate the low-duty unit 20 days per year, this difference would amount to 120 tons of fuel, which at \$3 per ton would represent a cost of \$360. Deducting this from the amount represented by depreciation and interest on the difference in cost of high and low-duty units—\$1,800—we have a surplus of \$1,440, which would pay interest on an investment of \$28,800 at 5 per cent.; something worth considering. In this case, it appears to me, the less efficient unit as a reserve would be by far the most economical one to buy.

I am aware that arguments may be brought against this advice. It may be assumed that since the installation is a permanent one, and since it is supposedly intended for use, all units should be of highest efficiency. Let us consider that all our cities are growing, and that a pumping unit that will supply the demand to-day will be entirely out of place in five or six years, so that it will have to be "doubled up" or replaced with larger units. Then since we can safely figure on this period of usefulness for either a high or low-duty pumping engine with but little attention other than ordinary adjustments, it seems to me that, from this point of view, the low-duty reserve unit is a still better proposition, since the loss due to replacing it before it is worn out is much less than in the case of the high-duty unit.

For instance, when increased capacity is required the low-duty 5,000,000-gallon pump can be thrown out at a loss \$15,000 less than could the high-duty unit. This would make way for another economical arrangement, inasmuch as the two 5,000,000-gallon units might be supplemented with a new high-duty unit of say 8,000,000 to 10,000,000 capacity; and the two 5,000,000 gallon units operated together and the new larger unit operated

alone would suffice for pumping from the source to the reservoirs or filters, and from the reservoirs or filters to the distributing mains, while another 8,000,000- to 10,000,000-gallon low-duty unit could be installed for reserve, with the same relative saving as in the first installation.

STEAM FIRE ENGINES

ENGINEERS of the National Board of Fire Underwriters last July tested the 18 fire engines used by the city of Columbus, O., to determine their efficiency and general serviceability, the result of which is given herewith.

Of the engines tested, 11 were Ahrens, 2 were Metropolitan, 2 were Continental, 2 were American and 1 La France. Two were extra first size, three were first size, four were second size and the remainder third size. Two were put in service in 1889, four in 1890, two in 1892, one in 1893, three in 1896, one in 1898, one in 1900, one in 1906, two in 1907, and one in 1909. The extra firsts were rated at 1,000 gallons per minute; the firsts at 900 gallons; the seconds, two at 700 and two at 650; and the thirds at 550, with the exception of one which was rated at 600.

The per cent of the rated capacity which was obtained by the several pumps in the tests was as follows: The extra firsts, 98 per cent against 135 pounds water pressure and 99 per cent against 106 pounds. The firsts, 92, 93 and 97 per cent respectively, against 99, 109 and 125 pounds. Seconds, 88, 95, 100 and 103 per cent against water pressures of 114, 112, 138 and 154 pounds respectively. The thirds showed percentages of 91, 99, 99, 103, 104, 104, 105, 107, and 108 per cent against heads of 119, 98, 118, 102, 115, 120, 119, 115 and 105 pounds respectively. This shows an average per cent of rated capacity for the 18 engines of 99.7 per cent.

The slip of pumps varied from 2 to 6 per cent, twelve of them showing 2 per cent, three of them 3 per cent, and one each of 4, 5 and 6 per cent.

Incidentally it is interesting to note that the hose couplings in several of the cities near to Columbus differ so much from those in that city as to make it almost impossible for one city to assist the other in time of large fires, unless some special bushing coupling be used. The Columbus hose have an outside diameter of male thread of 3 1/6-inch with 8 threads per inch. The outside diameters and threads per inch of hose used in other nearby cities are as follows: Springfield, 3 3/16 inches, 6 inches; Canton, 3 inch, 8 inch; Dayton, 3 15/64 inch, 6 inch; Cincinnati, 3 3/32 inch, 6 inch; Cleveland, 3 5/64 inch, 8 inch; Toledo, 3 inch, 8 inch. The National Standard is 3 1/16 and 7 1/2 inch, which standard can be made to fit either 7 or 8 threads per inch.

"PROTEST AGAINST TARRED ROADS"

Editor MUNICIPAL JOURNAL,

Nov. 10, 1911.

239 West 39th Street, New York City, N. Y.

Dear Sir:—On Page 300 of your Journal, September 6, 1911, you print what purports to be an interview with me respecting Tarred Roads.

I have no recollection of having been interviewed on this subject and it seems to me, considering the reprint of this in circular form, that the matter has been padded for advertising purposes.

I have said that the creosoting oil used by the City of Chicago in recent years for creosote block paving has not been satisfactory but I have not discussed the subject of Tarred Roads with anyone that I know of representing your Journal.

Very truly yours,

GEO. A. SCHILLING,

President, Board of Local Improvements, Chicago

The statement referred to in Mr. Schilling's letter was contained in our "News of the Municipalities" columns, under the heading quoted above. Our authority was a Chicago daily newspaper, in which the interview appeared about eleven weeks ago. If there was any "padding" it was done by the Chicago paper, as its statement was toned down in this office, if anything. We are glad to give all the publicity possible to Mr. Schilling's correction.

*We do not agree with this, except under the unusual condition that the lift to the filter is approximately the same as the pressure head on the mains. Editor.

Municipal Journal

and Engineer

Published Weekly at

239 West Thirty-ninth Street, New York

By Municipal Journal and Engineer, Inc.

Telephone, 2046 Bryant, New York

Western Office, 1441 Monadnock Block, Chicago

S. W. HUME, President

J. T. MORRIS, Manager. A. PRESCOTT FOLWELL, Secretary

A. PRESCOTT FOLWELL, Editor

F. E. PUFFER, Assistant Editor

SUBSCRIPTION RATES

United States and possessions, Mexico, Cuba.....\$3.00 per year

All other countries..... 4.00 per year

Entered as second-class matter, January 3, 1906, at the Post Office at New York, N. Y., under the Act of Congress of March 3, 1879.

CHANGE OF ADDRESS

Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper, either in the form of special articles or of letters discussing municipal matters, are invited and paid for.

Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

NOVEMBER 15, 1911

CONTENTS

Reinforced Concrete Sewer in Grand Rapids (Illustrated)...	619
Gathering Leaves from Streets.....	621
Garbage Reduction at Columbus.....	622
High-Pressure Gas Distribution (Illustrated).....	624
Water Works Pumping Machinery. By William Westerfield..	625
Steam Fire Engines.....	626
Protest Against Tared Roads.....	626
Engineers' Fees for Protracted Work.....	627
Municipal Clean-Up Day.....	627
Scientific Management Reducing Taxes.....	627
News of the Municipalities (Illustrated).....	628
Legal News—A Summary and Notes of Recent Decisions.....	635
Municipal Appliances (Illustrated).....	637
News of the Societies.....	639
Personals	640
Industrial News.....	640
Patent Claims (Illustrated).....	641
The Week's Contract News.....	642

Engineer's Fees for Protracted Work

A DECISION of the Supreme Court of Georgia, which is quoted on page 636 of this issue, affirms that an engineer who proposed to superintend the construction of a system of water works for a lump sum is not entitled to any additional payment because the work of constructing this system was continued after the time fixed in the contract for its completion. This decision, while it is in our opinion a perfectly just one, deals with a question which often arises in connection with agreements of this nature between municipalities and engineers engaged by them for designing and constructing sewerage and water works systems and other works of a like nature. It frequently happens that an engineer who has based his charge for such services upon the time which he and the city have predetermined shall be allowed the contractor for completing the work, finds his profits reduced or even entirely disappearing because of the expenses of assistants, visits to the city, etc., for a much greater period of time than he had estimated on.

Two or three methods have been employed to meet this difficulty. In certain towns in and near Philadelphia we have known of cases where the engineer in charge of construction

has been paid by the contractor rather than by the town, the amount of payment varying with the duration of the work. This we consider decidedly objectionable, as it is not a good policy for the engineer to receive money under any guise from the contractor whose work he is superintending for a city or other "party of the first part." A better plan, and one which we believe will meet the approval of any court, is to charge a lump sum for the services of the engineer during the time stated in the contract, an additional payment to be made at a rate per week or month specified for such time as the work may be protracted after this; and then making it a clause of the contract that if the work is not completed at the time specified the contractor shall reimburse the city for all expenses of engineering and inspection incurred by it because of such delay. The courts have always held, we believe, that a city or other "party of the first part" is entitled to recover from the contractor any proven damages or losses which it may suffer by reason of delay in the contract; always, of course, provided that the party of the first part is nowise responsible for such delay.

Municipal Clean-up Day

CELEBRATIONS of notable events are very apt to take the form of a spectacular appeal to the eye or ear, like the noise and fireworks of Fourth of July; but it is proposed that Baltimore, Md., depart from this general rule by celebrating the big fire of February 7 and 8, 1904, in a practical way. The suggestion of Fire Chief Horton, which is said to be favorably considered by the Mayor and other city officials, is that the day be celebrated by a general cleaning up of private premises in the city and the destruction of rubbish and other fire producing matter in alleys, yards and wherever else it may be found.

The suggestion is, of course, really that of fixing a day for what has already been adopted in a number of southern cities as a "clean-up day" or week. When this idea of an annual cleaning of the city was first started it reminded us of the lady who could hardly wait until Saturday to use her nice new bath tub. The practice of the annual cleaning, however, has apparently done good educational work in some cities where it has been faithfully followed. For instance, it is reported from Knoxville, Tenn., where a semi-annual clean-up day was recently celebrated, that not nearly so much garbage and rubbish was found scattered on the premises as in previous years, and that, on the other hand, the regular garbage collections throughout the year have considerably increased.

There is no question that an annual clean-up is better than none at all; and it is to be hoped that a few years of the annual or semi-annual cleaning will so educate the people and stimulate their pride in a clean city that they will indulge in cleanliness every day rather than await anxiously, through long weeks and months, these periodical cleanings.

Scientific Management Reducing Taxes

THE Commissioner of Accounts of New York City (sometimes called the "Mayor's eye" because his duty is to investigate the doings of the various departments with a view to discovering fraud or irregularities) has recently asserted that no less than \$15,000,000 could be cut off from the city's expenses if the principles of scientific management known as the "Taylor system," referred to in our issue of October 25, should be adopted. As an illustration and partial demonstration of this he stated that in the Bureau of Sewers of the Borough of Manhattan 50 per cent of the salaries and wages had already been saved through the application of this method, while at the same time the efficiency of the Bureau had been quadrupled. This would seem to indicate that the department is securing eight times as much value for each dollar expended in salaries and wages as it did before. Even assuming considerable exaggeration in these statements, if an average of 50 per cent could be saved in the salaries and wages of all the city departments without decreasing the efficiency, a very appreciable reduction in the tax rate would be made possible.

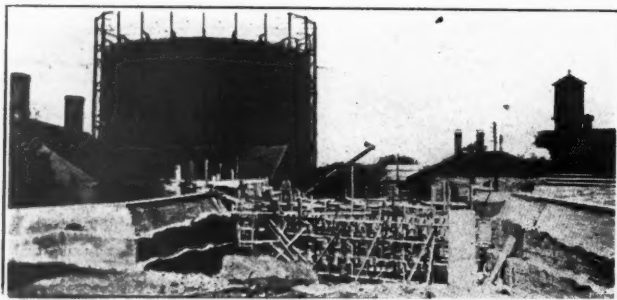
NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets—Water Works, Lighting and Sanitary Matters—Fire and Police Items—Government and Finance

ROADS AND PAVEMENTS

Lowell's Most Important Grade Crossing Abolished

Lowell, Mass.—The work on the School street grade crossing is nearing completion, and if the good weather holds out a few weeks longer the concrete work may be completed before the end of the year. It is by far the biggest of the grade crossing jobs undertaken in this city.



Courtesy Lowell Sun.

ABOLISHING DANGEROUS GRADE CROSSING

The work thus far has progressed with rapidity, and with a force of about 60 men the contractors have practically completed the concrete work leading to the abutments which are to support the street and roadway that will cross the tracks. The concrete piers have been finished up to the surface of the ground opposite the Lowell Gas Company's gas tank. These piers will support steel columns which will permit the gas company to freely use the intervening space. The engineering work is under the general supervision of the railroad engineers, A. B. Corthell, chief engineer; H. M. Sturtevant of Lowell is the inspecting engineer, and the interest of the city is looked after by City Engineer Stephen J. Kearney. The work of grading the approaches to the new bridges will be very extensive, and will require a change in the grade of all the adjoining streets.

Signs and Signals for Automobile Highways

Indianapolis, Ind.—A plan for posting Indiana roads with sign boards is under way in the Hoosier Motor Club. As soon as the organization is incorporated and able to pay for the necessary signs the arrangements will be completed and most of the roads in the vicinity of Indianapolis will be posted at once. The club will go into the sign posting business on a rather small scale at the start. Indianapolis auto manufacturers will be asked from time to time to furnish a car to cover a particular road. A full report of road conditions, the location of crossroads, etc., will be brought in and signs will be made accordingly. The club will probably adopt an individual system of signals. For instance, a red spot on a sign, may mean "dangerous turn ahead," a green streak may indicate something else, etc. The sign system, when completed, is expected to give the motorist on the road complete knowledge of his location and the conditions he will encounter just ahead of him.

Scheme for Preserving Walks

Atlantic City, N. J.—Because the Boardwalk Committee of Council is ready to listen to any reasonable proposition looking to the probable reduction of the cost of maintaining that celebrated structure which eats up money rapidly in repairs, a manufacturer of a patented composition is coating both the wooden deck to the Promenade and the concrete section at Maryland avenue also with his mixture. The paint or composition is designed to make wood and other materials waterproof. It is claimed to have the quality also of preventing water entering stone that has been treated. The Boardwalk Committee will give the preservative a fair trial.

Spokane Asphalt Streets to Be Sanded

Spokane, Wash.—Commissioner of Public Works D. C. Coates has announced that he would have all asphalt paving in Spokane sprinkled with sand at regular intervals during the winter to prevent horses slipping. The announcement was made to a big delegation of horse-owners, cab and transfer men who assembled in the council chamber to protest against any more asphalt being laid in the city unless a roughened surface is put on it, and who requested the city commissioners to take steps to have the specifications for pavement being laid on north Wall and Northwest boulevard changed to permit a rough surface. "We cannot change any specifications already adopted, but the rough surface asphalt will be considered on every asphalt job to come up in the future," said Commissioner Coates.

Dallas' Boulevard System

Dallas, Tex.—In his remarks preliminary to detailed suggestions concerning boulevards and parkways for Dallas, which preliminary remarks were recently published, Mr. Kessler said: "The park and boulevard system as designed for Dallas, embraces two distinct but related systems. The inner system is planned for the immediate needs of Dallas, while the outer system is designed for future requirements and to give proper direction to the growth and development of each section of the city." A review of the city plan expert's report to the Municipal and Park Board Commissions includes that portion only of the "inner system" that refers to the boulevard and parkways. In this subdivision Mr. Kessler suggests boulevard and parkways for the city of Dallas proper and for Oak Cliff and West Dallas. In this connection it should be remembered that in conferences heretofore Mr. Kessler has distinctly declared that none of his recommendations as to boulevards are rigid but, on the other hand, that they are most elastic and that boulevards will naturally follow the lines where they are most encouraged.

Laying Cold Bituminous Mixture in Central Park

New York, N. Y.—The New York Park Commissioner has recently had a short stretch of one of the main driveways of Central Park paved with a new kind of material which he hopes will prove superior to the regular macadam road mixture. Park driveways, especially those popular with automobilists, are excellent places for trying out new kinds of paving materials and with the great amount of travel over such stretches it is possible to determine more quickly than usual whether or not the material is adapted for use on roads where the traffic is dense. This particular material is described as being composed of a mushy bituminous mixture of trap rock screenings, that is laid cold to a depth of two inches upon a concrete foundation four inches deep. It is said that the mushy top surface hardens on the surface after it has been down a few days, but that it remains slightly soft at the bottom, so that it is resilient. The commissioner expects the experimental stretch to give good satisfaction and if it does he will expend about \$100,000 in paving some of the Central Park roads with this material next spring.

Knoxville Will Experiment with Sample Pavements

Knoxville, Tenn.—The Barber Asphalt Paving Company will lay a sample of bituminous macadam paving in front of the Elks' home on State street and along the side on Clinch avenue, free of cost to the city. The paving is a cheaper grade than that of sheet paving now being laid by the company in this city. There has been a demand for a cheaper paving in Knoxville for resident streets. Recently the Kentucky Asphalt Company agreed to lay a sample block of its paving on Park avenue. The Barber Company will lay two grades of paving on State street, which is a heavily traveled thoroughfare. The company will lay the paving on a concrete base, and on Clinch avenue it will be laid without the concrete base.

SEWERAGE AND SANITATION

Recommends Cleaning Sewers Yearly

Fort Wayne, Ind.—"The Fort Wayne sewers must be cleaned each year by some mechanical means if they are to be kept in the proper condition to perform the work delegated to them. In the past Fort Wayne has not paid as much attention to this phase of the sewer system as it should have done, but in the future such work should be done each fall." Leonard Metcalf, of the firm of Metcalf & Eddy, who prepared the recent report on the local sewer system and the improvement of the river banks, had this to say in addition to the statement in the report concerning the sewer system, when he arrived in the city to attend the annual meeting of the Fort Wayne Civic Improvement Association: "The interceptor is in the worst condition at the present time," continued Mr. Metcalf. "In the interceptor there is the accumulation of years and this should most assuredly be removed. Fort Wayne's sewers are not in such very bad condition at that, and with the proper amount of attention can be kept clean." Mr. Metcalf reiterated his statements to the effect that Fort Wayne has a wonderful opportunity for city beautification. "I have been particularly impressed," said Mr. Metcalf, "upon my recent European trip with the manner in which the cities of the old country utilize their rivers for purposes of beautification. In this respect Fort Wayne is particularly blessed and can easily make its rivers one of the most beautiful spots in the city." Mr. Metcalf is having a number of slides prepared which he will use in his stereopticon talk to show local conditions.

Cash Paid Toward Passaic Valley Sewer

Newark, N. J.—Under the contract in which fifteen municipalities have agreed to join in the work of building and maintaining the proposed Passaic Valley intercepting sewer, payments on the first instalment of the cost of the project have already been made. The total cost of the work is estimated at \$11,250,000, and of that sum \$500,000 was due immediately. The first payment on this account was made by Nutley, which sent into the commission's office in the Essex building a check for \$4,605.12. Then came a check from Rutherford for \$1,851.08, and soon afterward representatives of Paterson handed to Secretary John S. Gibson a check for \$100,583.28. With the exception of the sum due from Newark on the instalment, the Silk City's share of the cost of the work is the largest. Newark's share on the present call for funds amounts to \$318,823.79, and of that sum \$10,000 was advanced about a week ago. With this money and an actual working contract the commission will be in a position, after many years of delay that have been due to various causes, to take up and push forward the work of construction. It is expected that the revised plans that have been made necessary by the refusal of Orange, East Orange, Montclair, Bloomfield and Glen Ridge to join in the project, will soon be ready. The specifications will then be prepared, and as soon as possible after that bids for the work will be solicited. The contracts, or at least some of them, will be awarded, and once that has been done no time will be lost in starting the work of making the dirt fly.

Richmond Orders Inspection of All Meat

Richmond, Ind.—The complaints that recently resulted from the fact that some local meat dealers were selling uninspected products have been answered by the city health authorities, and it is declared that all meats that have not passed inspection will no longer be sold in Richmond. The dealers who had been purchasing meats of packers who handled uninspected products and who were violating a city ordinance by offering such meats for sale, have given heed quickly to the warning sounded.

Dallas Discusses Sewage Disposal

Dallas, Tex.—It is probable that the Mayor and City Commissioners will take no action on the question of sewage disposal for the city of Dallas until the visit here of James H. Fuertes, of New York, an eminent authority on sewage disposal, water purification and underground engineering. Mr. Fuertes has recently been in Caracas, Venezuela, and other South American cities, studying sewage disposal problems, and through the City Plan League agreed to visit Dallas upon his return.

WATER SUPPLY

Feeding River from Well

San Antonio, Tex.—The use of artesian wells for supplying a city with water is an old story, but the attempt of a city to give a concrete answer and example to the ancient



Courtesy San Antonio Express.

FILLING RIVER WITH WELL WATER

nursery conundrum of "How many wells make a river?" is novel. This is what San Antonio seems to be doing. In order to increase the flow of the San Antonio River, which in dry seasons is little more than a series of stagnant pools extending through the city, the city is pumping water from a superfluous artesian well, located near the stream above the city, into the channel. More than 1,000,000 gallons daily are being pumped from the 12-inch well in Brackenridge Park.

Water Purified by Violet Rays

Washington, D. C.—Ultra violet rays for the purification of drinking water is the latest development in the Philippines. The army surgeons there have been making successful experiments with a plant consisting of a small dynamo and gasoline engine, carried in the ordinary escort wagon with troops, which has shown itself capable of completely purifying sufficient foul water to serve daily a quart of sweet drinking water to every man in a regiment of troops. The ultra violet rays not only kill the animal parasites in the water, but also destroy the bacterial causes of disease.

Ashokan Main Dam Ready

Kingston, N. Y.—The masonry work on the Olive Bridge Dam, which is the main dam of Ashokan reservoir, has been completed by placing in position the last of the huge concrete blocks forming the coping. The main dam contains five hundred thousand cubic yards of masonry, and the work has been done within twenty-five months, breaking the world's record for masonry construction of this magnitude. The adjacent dikes will not be completed for some time.

Sacramento to Have New Water Supply

Sacramento, Cal.—The Sacramento Water Company, a corporation formed for the purpose of furnishing the city with a supply of mountain water brought from Salmon Falls, near Folsom, has filed articles of incorporation with Secretary of State Jordan, giving its capital stock at \$1,000,000, of which \$1,000 is actually subscribed. Behind the company are Francis V. Keesling, Ernest L. Brune and J. W. Cook of San Francisco; Otto Grau of Markleeville, and U. R. Grant of Alameda. Keesling is also the promoter of the projected Sacramento-Folsom electric line, which is to traverse the holdings of the Natomas Consolidated. The Natomas Consolidated controls the watershed from which the new water company seeks its supply and it is assumed that the Natomas people are back of both projects. Keesling has secured 2,000 inches of water, or 30,000,000 gallons a day, at Salmon Falls, twelve miles above Folsom. His company proposes to build a storage reservoir of 50,000,000 gallons capacity at the end of the Natoma ditch, also a regulating reservoir of 12,000,000 gallons capacity. The water will be offered wholesale to Sacramento and if a contract is closed will be piped to the city limits.

City Water Plant Shows a Profit

Kearney, Neb.—Despite the most unfavorable conditions under which the city water plant has been operated since taken over by the city six months ago the showing so far made, according to a recent report of the water commissioner, is very satisfactory. During this time a number of extensions have been made, besides giving the patrons water at a reasonable rate with a discount for a large part of the recent dry spell. Without going into details of figures shown by the report, the net result is that the plant earned \$8,723.79, of which amount \$7,552.45 is collected, and a part of the balance is estimated and not yet due, on account of the meters read not being all collected in the same quarter. The disbursements during this time have been \$9,088.66, or an excess over earnings of \$364.87. Another item is the interest that the city pays on the bonds just voted, and by a little computation it was found that the city paid under the old régime for water about \$700 a year in excess of the present interest on the bonds, this amount being now saved to the city on water used for sprinkling, hydrant rental and water used in the schools, parks, etc.

New Water System Completed

Wheeling, W. Va.—The pumping station for the supplying of the residents of Wheeling Hill has been completed and after being tested in the presence of the members of the Board of Control, water was turned into the mains. Two 20,000-gallon tanks have been erected at the highest point on the hill and these are supplied by duplex pumps at the reservoir which drives the water through the mains. A brick pump house containing two automatically driven motors has also been erected. When the tanks are filled to the top, the automatic pumps will cease work, but when it gets below a fixed point in the tanks they will be filled again automatically from the reservoir. The system was installed by the Trimble & Lutz Supply Company, and will cost in the neighborhood of \$20,000. Practically all of the houses on the hill have been connected with the service and the balance will be finished shortly. A water pressure of about two hundred pounds will be maintained which will be ample for fire protection as well as supplying the families with the necessary fluid.

Buying of Water Plants by State

Newark, N. J.—Before taking further steps in the carrying out of a scheme to supply various municipalities in this end of New Jersey with water from the Wanaque River, the State Water Supply Commission will ascertain what it will cost to secure an appraisal of the physical property of the East Jersey Water Company and of the Elizabethtown Water Company. Mayor McBride at a recent conference advanced the theory that it might prove less expensive for the interested parties to acquire the East Jersey plant at Little Falls than to spend between \$9,000,000 and \$10,000,000 on the proposed Wanaque development.

State Board Will Test Lake Erie Water

Cleveland, O.—The State Board of Health will shortly commence a Lake Erie survey at Cleveland to gather data for a report on the sources of contamination of the water supply of hundreds of cities and villages of northern Ohio. Superintendent Ford, of the Health Department, received word from President Warner of the State Board of Health asking that arrangements be made for the use of a city boat. Dr. Ford has received Service Director Lea's promise that the harbor master's launch could be used whenever the State officials wished to commence the work. Samples of water will be taken at various distances from the shore and bacteriological tests will be made in each instance. The results will later be tabulated and comparisons made between water at and near the Cleveland harbor and intake and at other points along the lake. The material that is to be gathered by the State Board will be used by the International Great Lakes Pure Water Association, of which Dr. Ford is president. The organization will meet in Cleveland, in January. All of the cities of the Great Lakes will take part in the pure water movement, it is believed.

Shortage Partly Supplied by Private Companies.

Oklahoma City, Okla.—A 4-inch stream of water coming from the two wells at the Centerfreze Ice Company's plant has been turned into the city's water mains and soon the connection will have been completed at the one well of the Oklahoma Gas and Electric Company which has been ten-

dered the city. These three wells will, it is estimated, give Oklahoma City an additional 1,000,000 gallons of water every twenty-four hours, which, added to the present available supply of between 4,000,000 and 5,000,000 gallons, afford not exceeding 6,000,000 gallons a day under the most favorable conditions. Thus it can be reasonably estimated that the available supply is about 3,000,000 gallons short of the requirements. In order to overcome the shortage in the best way possible the city water will be turned on at intervals, probably not more than once daily. At such times citizens must "catch" enough water to last them twenty-four hours. Commissioner Hampton said that the periods of turning on water will not be made public for fear that much unnecessary use of water might result. At present street sprinkling has been entirely abandoned, and lawn sprinkling and irrigation of gardens is strictly forbidden under penalty of having water connections shut off.

Largest Crushers in World for Kensico Reservoir

Allentown, Pa.—The Traylor Engineering and Manufacturing Company, of this city, has just closed a contract for the erection of the largest rock crushers that have ever been built. The machinery for this plant will be manufactured by the Traylor company at its works in Allentown, and consists of two mammoth jaw crushers, one weighing 450,000 pounds and the other 600,000 pounds, and one heavy drill crushing roll, the largest of its kind, together with elevators, screens, conveyors and other machinery. The crushing plant is to be used by the H. S. Kerbaugh Company for the crushing of rock for the concrete work in the construction of the Kensico reservoir at Valhalla, N. Y. This plant is not only one of the largest that has ever been built, but it will include all of the most modern machinery and improvements. The cost of crushing the rock will not exceed 4½ to 5 cents per yard of rock crushed. The plant is to be erected and turned over in full operation in eight months.

Filter Plant Is Effective

Rahway, N. J.—Routine matters comprised the business of the Board of Water Commissioners at its last meeting, the most important feature of which was the monthly report of Bacteriologist Earle B. Phelps, who praised the efficiency of the filters in view of the turbidity of the river water. The report showed that 100 per cent. of the bacteria coli had been removed and 94.5 per cent. of all bacteria. Bacteriologist Phelps stated: "During the month the river water has been quite turbid and highly colored and a portion of the color of the water has passed through the filters. There is absolutely no sanitary significance to be attached to this and it is quite the usual state of affairs in treating water of this character by filters of this type." In commenting on the report, Commissioner Langstroth said that the slight discoloration of the water was undoubtedly due to the numerous leaves that fall into the stream and that the quality of water is exceptionally good for this season of the year.

New Water Plant Formally Accepted

Atlantic City, N. J.—The new \$50,000 pumping plant of the water department at Absecon has just been completed and has been formally accepted by the Board of Water Commissioners. The new structure is entirely of brick, concrete and steel and is entirely fireproof, and is somewhat larger than the pumping station it replaced. All of the former building, with the exception of one or two partition walls and a portion of the foundation were removed as the new structure progressed, the work being in progress something like six months. Bader & Co. had the contract. The Water Commissioners have inspected the building and the new plant will soon be open for public inspection.

May Produce Electricity from Water Supply

Little Falls, N. Y.—Attorney Abram Zoller recently received a communication from Robert E. Horton of Albany, a hydraulic engineer, in regard to a letter sent him by Mr. Zoller inquiring as to the feasibility of establishing a municipal lighting plant by using the water from the city's supply system. In reply Mr. Horton states that the fall from the city distribution reservoir to the valve house, is capable of giving 170 horse power. This timely communication may be of great assistance in helping the aldermen and citizens' committee appointed to find a way out of the electric lighting proposition.

STREET LIGHTING AND POWER

Start Big Edison Turbine

New York, N. Y.—Thomas A. Edison was prevented by a severe cold, which he caught while witnessing the battleship review from starting the new giant turbine electric generator in service in the Edison Company's waterside station at First avenue and Thirty-eighth street. George B. Cortelyou, president of the company, took his place. The process of transferring to the turbine the power or load from the seven huge reciprocating engines on one side of the long building was watched with keen interest by a party of engineers and electricians, including C. A. Coffin, president of the General Electric Company, which built the turbine; C. F. McComb, chief engineer of the Department of Water Supply, Gas, and Electricity; N. F. Brady, vice president of the Edison Company; J. W. Lieb, Jr., Arthur Williams, B. A. Behrend, C. K. Nichols, and Robert Grier Cook. The new turbine is the most powerful electric generating machine in the world. It can do all the work of the seven reciprocating engines, and yet these, when installed seven years ago, represented the most advanced progress in electric generators. Eventually there will be three of these immense turbines in operation at the station. The turbine has a capacity of 30,000 horse power, sufficient to supply all the current for a city of 350,000 inhabitants, and it could give power for a chain of cities such as Albany, Syracuse, and Utica. In lighting ability it could furnish power for over 1,000,000 incandescent lights of sixteen candle power each. The turbine is about 35 feet high and covers 297 square feet of floor space, but a trifle more than one of the old vertical engines. Its weight is 420 tons, the diameter of the wheels 13 feet and each travels at a rate of about six miles a minute, or over 8,600 miles a day. To keep it in operation 400 tons of coal are required every twenty-four hours to furnish the necessary 7,200,000 pounds of steam.

Wires Go Underground

Tampa, Fla.—Noticeable improvement in the appearance of several of the principal streets of the city has been effected by City Electrician E. D. Fitzgerald by removing the aerial electric wires, with their unsightly appurtenances, and placing the wires underground.

Lighting Rates Cut

St. Louis, Mo.—The West End Light and Power Company has filed with the Public Service Commission a schedule of its rates, placing the maximum charge at 9½ cents a kilowatt hour, the rate fixed by the commission. The same minimum charge of 50 cents a month designated by the Laclede Gaslight Company in its schedule last week was also named. No mention was made of special contracts.

Removal of Wires Ordered by Mayor

Binghamton, N. Y.—In a message given out for publication Mayor Irving announces his approval of the ordinance directing the removal of wires from Commercial avenue. In the message which will go to the council at next meeting the Mayor said: "No corporation or individual should be allowed to use our streets without lawful permission so to do. The ultimate removal of all overhead wires from our public streets and placing the same in conduits is bound to come."

Lynn to Have Underground Wire System

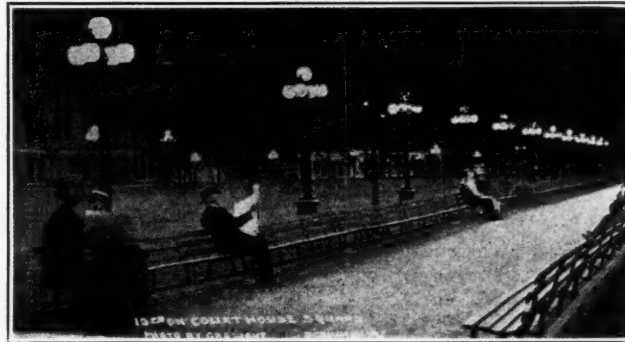
Lynn, Mass.—Underground circuits connecting the different police and fire alarm boxes of the city will soon be installed and already has work been started under the direction of City Electrician B. F. Moody. The first step was at Houghton square and at the completion of the work, city wires will be invisible and dangerous passing will be done away with in this part of the city. For several years it has been considered something of a set back as well as an inconvenience and expense to the city to have the city wires overhead.

Sacramento's New Electroliers

Sacramento, Cal.—The electroliers that are to adorn J and K Streets are being made in this city and the first one will soon be ready for installation, according to a report made by the Sacramento Retail Merchants' Association.

Lighting Scranton's Public Square

Scranton, Pa.—The Scranton Gas and Water Company recently secured the contract for lighting the public square of the city with gas lamps. The specification called for 50 five-light posts, each lamp to consume 4 cubic feet per hour, or a total hourly consumption of 1,000 cubic feet. Pilots were placed in each lamp. As shown in the illustration,



ORNAMENTAL LIGHTING OF PUBLIC SQUARE WITH GAS

these lamps were placed along the park walks and benches so close together that a newspaper can be read anywhere, while the lighting is uniform and without glare. One of the conditions of the contract was that no large manhole or similar structure should be placed upon the city property. As the gas for this installation had to be measured and there was no place for a meter but a manhole, this made it necessary to cast about for a compact meter of large capacity and so strongly built that life in a manhole would not injure it. The Rotary meter suggested itself and was installed accordingly. The size No. 1 was chosen, measuring 13 inches between faces of connection flanges, 10 inches high, having 3-inch connections and a maximum capacity of 1,250 cubic feet per hour. The width of this meter was 9 inches and the dial was placed horizontally on top. Thus the dimensions of the manhole pit were only 4 feet deep and 2.5 feet square and it contained the meter, by-pass and valves. The manhole cover was also 2.5 feet in diameter, and when the meter is read it is simply necessary to raise this cover and the dial is in plain view.

Want Lights Extended

Albany, N. Y.—Business men and owners of property in Broadway between Columbia street and Clinton avenue, called on Wallace Greenalch, commissioner of public works, to petition for an extension of the new street lights in Broadway as far as Clinton avenue. The delegation called at the mayor's office, but in the absence of Mayor McEwan, presented its case to Commissioner Greenalch. The new lights, similar to those in Fifth avenue, New York, are being installed in Broadway from State to Columbia streets; in North Pearl, from State to Clinton avenue; in State, from Broadway to Eagle street, and in Washington avenue, from Eagle to Swan streets. Commissioner Greenalch said he would take the matter up with the mayor and endeavor to have the request granted. The commissioner was informed also that the residents of that section desire to have the street repaved from the end of the asphalt pavement at Columbia street to Clinton avenue.

Manchester Electric Light Plant Burned

Manchester, Ia.—The E. W. Hoag electric light plant, Manchester's pioneer public service institution, was leveled to the ground by a \$10,000 fire of unknown origin. The blaze occurred on the anniversary of a fire which 22 years ago destroyed the first plant on the site.

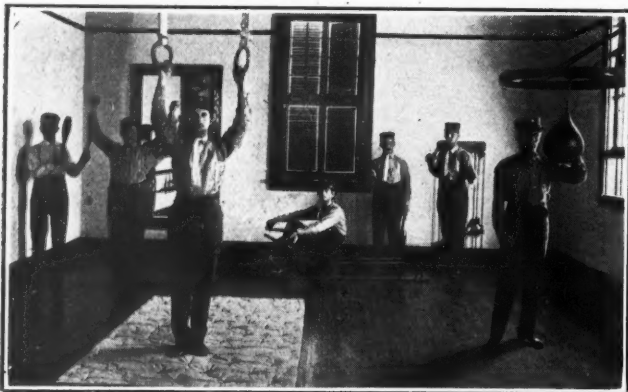
Free Lights Offered in Return for Franchise

Petersburg, Ind.—Representatives of the Evansville Gas and Electric Light Company have agreed to furnish free electric lights to the city if the Council will grant the company the new ten-year franchise that is to be let in the city early in the year of 1912. The Evansville company promises to save the town \$22,500 in ten years. The Petersburg Electric Light Company now has the franchise, and it will be tendered to it for another ten years if it will come to the terms of the Evansville company.

FIRE AND POLICE

First Firemen's Gymnasium in New Orleans

New Orleans, La.—Realizing that physical culture is essential to the men in the department, the New Orleans Fire Department has just added to its new fire station on



Courtesy New Orleans Picayune.

GYMNASIUM IN NEW ORLEANS ENGINE HOUSE

Louisiana avenue one of the best equipped gymnasiums in the South. So far the gymnasium has proven very popular with the men. Captain Heeney sees that the men take daily exercise and personally superintends their work. The dormitory is well ventilated, spacious and well lighted. There is room enough to accommodate 14 men. The bath and locker rooms have the best equipment obtainable. In the bathroom quite a novel thing is the amateur barber shop. The ground floor is of concrete, thus enabling the men to keep the place perfectly clean at all times.

Fire Restrictions Planned

Brockton, Mass.—Because of the many dangerous fires that have occurred in the south and north ends of Brockton within the past year, the special committee of the City Council appointed to consider changes in the fire ordinances has decided that restrictions that are put on buildings in the congested center will have to be applied to both ends of Brockton as well.

Fire Company Incorporates

Morris Plains, N. J.—Morris Plains now has an incorporated fire department. In the County Clerk's office papers were filed incorporating the Morris Plains Fire Company No. 1. The company has purchased a lot in Speedwell avenue and will erect a firehouse in the spring. It is also planning the purchase of an engine to add to the apparatus already belonging to the company.

Fire Department Speed Regulated

Providence, R. I.—The following regulations regarding the speed of auto apparatus have gone into effect:

"Motor-driven apparatus of the fire and protective departments shall not exceed a rate of speed of 25 miles per hour while responding to a fire, or to any alarm therefor, unless the chauffeur is specifically ordered to exceed that rate by the officer or member in charge of the apparatus at the time: Provided, however, that under no circumstances shall such an order be given, or such rate of speed be exceeded, while passing through any street in any of the congested business sections of the city during the following periods:

"On Saturdays: From 6 a. m. to 11 p. m. On all other days: From 6 a. m. to 7 p. m.

"All motor-driven apparatus of the fire and protective departments shall be equipped with a speedometer of the maximum hand and locked reset type, and it shall be the duty of the officer or member in charge to read, reset and lock such speedometer immediately upon return to quarters, and also to enter a record of such reading in the company journal and in the monthly report of fires attended.

"In case a rate of speed in excess of 25 miles per hour is at any time attained, a report of the same, together with a statement of the reasons therefor, shall be forwarded to the office of the Board of Fire Commissioners within 24 hours thereafter.

"The rate of speed in returning to quarters and in covering in to other stations shall not exceed 15 miles per hour, and the use of the siren horn is hereby prohibited at such times.

"Motor-driven apparatus shall have the right to pass horse-drawn apparatus in going to and in returning from a fire or an alarm for a fire, but in no case shall such motor-driven apparatus be permitted to pass similar apparatus of another company unless the leading machine becomes disabled, in which case the officer or member in charge shall signal the car following to pass.

"This regulation shall not authorize, and no such apparatus shall be driven at, any greater speed in any street or way than is reasonable under the conditions of travel prevailing at the time therein."

Hitching Record of Buffalo Department

Buffalo, N. Y.—The inspection of the Buffalo Fire Department by the Commissioners and Chief B. J. McConnell was completed last week. It was a thorough inspection of the men, horses, apparatus and houses. The following are one day's records for hitching:

Company and Captain.	1910.	1911.	Feet to Pole.
Engine No. 2, D. B. Collins.....	9	8	31
Truck No. 9, W. P. Hourigan.....	9	10	57
Engine No. 17, Thomas J. Kirby.....	7½	10	31
Chemical No. 5, J. H. McTigue.....	5	6	34
Engine No. 19, J. P. Morrissey.....	9	8	30
Engine No. 15, Peter Riedel.....	10	8½	31
Engine No. 26, Michael Irwin.....	7	9	28
Engine No. 11, W. J. Heagerty.....	8	8	36
Truck No. 4, Edward F. White.....	8	8½	51
Engine No. 13, Walter Mahoney.....	9	8	33

Police Equipped with Searchlights

Providence, R. I.—The night patrolmen of the Fountain street station have been furnished another "weapon" to aid them in the performance of their duties, this being in the form of a neat little electric "searchlight." The light is intended to help the policemen in finding numbers on buildings at night and also to illuminate their paths in dark and unfrequented places. It is the purpose of the Board of Police Commissioners to equip every night patrolman in the department with one of the handy little lights as soon as possible.

Ladder Truck Tested as Water Tower

Manchester, N. H.—The old aerial ladder, which has been rebuilt by the Seagrave Company and provided with ladders of the trussed type and equipped with the quick-raising pneumatic device, was received from the factory last week



Courtesy Manchester Union.

AERIAL LADDER USED AS WATER TOWER

and given a public trial. In response to a special alarm the truck was driven to a point near the new Manchester home and the ladder raised. A 50-foot line was attached to a permanent nozzle on the ladder and the other end to a Siamese coupling on the ground and the Amoskeag steamer played through the line. The nozzle was operated from the ground by means of a cord. The stream was directed into Merri-mac Common and the nozzle elevated and depressed at will. A week before this the fire department, under Chief Thomas W. Lane, held a general parade and review, the first in 15 years.

Part of Alarm System Out of Service

Wilmington, Del.—Police and fire alarm boxes in the northwestern section of Wilmington are useless because the cable crossing the Brandywine Creek has been worn out.

Boys Set Fire to Waste Paper Boxes

Elwood, Ind.—The latest of the one thousand and one things to bother the Police and Fire Department is the setting on fire of the tin waste paper boxes on the corners, not less than a dozen of these boxes having been started blazing. The police have found that the paper inside the boxes is fired by small boys, who discovered that they formed a very good substitute for a stove, and after getting them to blazing the urchins find the heat very pleasant to cold hands and feet. Two small boys and a girl were found near one of the burning boxes recently, who cried when the fire was extinguished and when threatened with arrest. The firing of the boxes is becoming a serious matter here.

Chicago's Wooden Buildings Increase Hazard

Chicago, Ill.—The cost of wooden buildings erected in Chicago in 1909 was \$13,500,000, and of those erected in Philadelphia, \$38,000, says the Tribune. This helps to explain why there are more fires in Chicago than in the Quaker City.

To Buy Caps and Uniforms from Local Manufacturers

St. Louis, Mo.—The practice of buying caps for city firemen outside St. Louis occasioned a resolution from Delegate Gazzolo in the House of Delegates in which he asked the department to buy its caps in the city. He alluded to the so-called slogan, "St. Louis has the goods," and asked the Fire Chief to remember it in making recommendations for contracts. The resolution was adopted amid applause. It is understood it is only the forerunner of other resolutions that will be adopted pertaining to the uniforms of firemen and policemen.

Improvements Reduce Insurance Rates

Dallas, Tex.—The State Insurance Board has issued an order decreasing the key rate for fire insurance from 34 to 22 cents, the order to become effective December 1. This reduction of 12 cents is in consideration of certain improvements in water supply and fire service already made or to be made by the city. The city agrees to do the following things: Increase its underground supply by 2,000,000 gallons per day; to add to its reserve supply 4,500,000 gallons per day from river, rainfall or underground supply. If at any time the reserve supply falls below 250,000,000 gallons the city will add 9,000,000 gallons to its daily supply. The city agrees to create the office of City Fire Marshal and to add one additional fire engine to its department.

GOVERNMENT AND FINANCE**Hit by Municipal Competition**

Cincinnati, O.—The Hamilton Gas and Electric Company, of Hamilton, O., which filed a petition in bankruptcy in the United States Court here, has been placed in the hands of W. A. Everson as a receiver. The liabilities amount to \$1,013,856 and the assets are valued at \$536,603. The company's liabilities for the most part are in the form of a bonded debt amounting to \$846,000, a considerable part of which is held in the East. All the property of the company is mortgaged as security for the bonds. Unsecured debts are \$126,372. The company is one of the oldest in Ohio, having been in operation since 1855. Its embarrassment was caused by the city of Hamilton building its own gas and electric plant and supplying gas at 30 cents a thousand feet. This was one-half of what the Hamilton company had been charging, and the company had to cut its rate in half. As a result it was unable to pay interest on its bonds in July, and had to face vexatious petty litigation.

Reasons for Including Township in City

Youngstown, O.—The extension of the city limits to include the entire township of Youngstown is the intention of Council, as brought out in a conference between a committee from that body and the County Commissioners. This conference was in the nature of a preliminary consultation, and many others may be held in order that a plan can be found that will be satisfactory to all. The elimination of all township offices, district sewer systems and systematic development of the entire territory are the city's chief reasons for annexation of the entire township.

City Treasury to Receive All Fees

Walla Walla, Wash.—Hereafter there will be no retaining of fees by the city officials or employees. An ordinance has been passed providing that all fees and charges collected should be turned over to the city treasurer. This ordinance, it is alleged, will mean the collection of many dollars that are now being lost. The ordinance includes all fees and charges collected by all officers, deputies or employees. Every effort is being made by the commissioners to collect all the money that should be turned toward the city's expenses, and no chance is being taken anywhere. Commissioner of Finance Dice is said to be responsible for the measure; and he is working on several more, it is stated, that will be of much aid to the city's pocketbook. Heretofore the city clerk has been allowed 50 cents of the fee collected for each dog license and has been required to furnish the metal license tags, while the poundmaster has been allowed \$1 for every dog killed, the \$1 fee received for redeeming dogs and all money received from the sale of dogs. He was required to pay the salaries of the men employed to catch unlicensed dogs. An ordinance providing that hereafter any charges by the officers shall be promptly turned over to the city treasurer and placed in the general fund, was passed. A clause in the ordinance stated that it was passed for the purpose of limiting and confining the compensation of the different city offices to the salaries prescribed by the commissioners.

Urge Commission Plan

Rochester, Minn.—Following the decision of Attorney General Simpson that Minnesota cities can adopt the commission form of government under the state constitution, provided that two branches of government, the legislative and executive, are incorporated in the adopted charter, according to the constitution, agitation for a commission form in Rochester, will again be started. A meeting of citizens interested in the commission idea has been called, and it is possible at that time steps will be taken to bring the matter before the voters. Rochester's high tax rate and the management of city affairs are declared causes for a change in the present form. Steps were taken for the commission form of government in Rochester a year ago, but the decision that the commission plan was unconstitutional ended the agitation at that time.

Progressive Chattanooga Plans Many Improvements

Chattanooga, Tenn.—That Chattanooga is to have within one year not only a new street railway system, but, moreover, interurban connections with Dayton, Tenn., Dalton, Ga., and other nearby towns, is now practically an assured fact. The local traction addition is an absolute certainty and only a drastic change in the plans of C. E. James and the capitalists who are building the lock and dam at Hale's Bar, Tenn., at a cost of \$6,000,000, will prevent the completion of the interurbans. The articles of incorporation, issued to C. E. James and others, have already been received from the secretary of state, and only the assured action of the city commissioners in allowing the franchises upon the streets and thoroughfares within the corporation limits delays the actual inauguration of the work. The new system is one of the many exploits of the syndicate of eastern capitalists who are simultaneously building the lock and dam at Hale's Bar, creating a new manufacturing and residence suburb, and also a complete summer resort upon Walden's Ridge in close proximity to the famous Interstate Club. One of the branches of the practically assured system will scale the historic heights of Lookout Mountain and thus interest all tourists and travelers. The present method of ascent by the incline now in use with 85 per cent. grade has long injured Lookout Mountain as a summer resort. It is the plan of the new company to run its regular service cars directly to the summit by means of a circuitous route which will be unequaled in the world in a scenic way.

New Charter for Hackensack

Hackensack, N. J.—Mayor Bell, who recently came out in favor of a city charter for Hackensack, has given notice that the question will be submitted to the registered voters at a special election in the near future. The proposition is to make Hackensack a second-class city. It is now a town ruled by a board of six commissioners elected under an old act.

STREET CLEANING AND REFUSE DISPOSAL

Municipal Reduction Plant Recommended

Denver, Col.—The campaign of the Colorado State Board of Health against garbage-fed hogs, and the consequent spreading of tuberculosis, is to be statewide. "I do not think that it is right," said Dr. Sherman Williams, president of the board, "that Colorado Springs should allow the feeding of garbage to hogs and then force the infected animals upon the Denver market by passing ordinances prohibiting their slaughter and sale in that city. We advocate the establishment of a reduction plant, municipally conducted, by which the destruction of garbage can be secured, the cost paid for by the by-products, and the whole unsanitary garbage hog business done away with. We have facts in our possession which will absolutely prove that a reduction plant can be operated without extra cost to the city, and probably at a profit."

School for Garbage Collectors

Los Angeles, Cal.—If your garbage collector isn't an "educated gentleman" it isn't the fault of E. B. Cushing, Inspector of Public Works. He has been conducting a school for drivers of the garbage wagons for the last several weeks. As a result there have been few complaints about the garbage from householders. A man who drives a garbage wagon for about \$2 a day isn't expected to be able to qualify for the diplomatic service, so clashes between the drivers and the owners of the garbage cans had been more or less frequent. Recently Cushing sent garbage inspectors, who draw good salaries and are supposed to be better developed mentally, around on the wagons with the drivers. The inspectors taught the drivers what to do in certain cases—how to determine where garbage cans should be placed; whether or not they should be washed out; whether the lid fit or did not, and other matters that garbage collectors should know. After a few days of this personal contact the garbage inspectors drove behind the collectors and watched them, always ready to help in a crisis. Recently the inspectors have been cutting across lots and keeping their eyes on the drivers, but not at such close quarters. Cushing feels that the experiment was successful and well worth the little extra expense and time it required.

Tin Cans at a Premium

Knoxville, Tenn.—Tin cans are at a premium in Knoxville. Boys in all parts of the city are busily and energetically at work clearing streets, alleys and private premises of tin cans and other debris. This activity is due to the announcement that the "Sentinel" will give a goat, harness and wagon to the boy delivering the greatest number of old tin cans gathered from premises and thoroughfares in this city. The prospect is that Knoxville will soon be cleared of all its old tin cans.

Garbage Contract Cancelled

Indianapolis, Ind.—The Indianapolis Sanitary Company and the Board of Public Works have signed an agreement to the effect that a contract for collecting and disposing of garbage, signed July 14, 1911, is recognized as void and of no effect. The company and the board release each other from all obligations under the contract. The contract was to have been for a period of five years, from May 26, 1912, at \$63,000 a year.

Louisville Appoints Clean-Up Day

Louisville, Ky.—The dates for "cleaning-up days" this fall were fixed at a recent meeting of the Outdoor Art League at the Louisville Free Public Library. November 17 and 18 were decided upon as the days when housewives, school children and city employees shall busy themselves removing trash and converting Louisville into a "city of cleanliness." It was announced that the committee in charge had made preparations for the two November days. Arrangements were made for the distribution throughout the city of thousands of slips, calling attention to the dates for "cleaning up." Thirty thousand slips will be given out among the school children, a large number will be sent to the police for distribution, and others will be given to various stores to be distributed by means of parcel deliveries.

Municipal Cleaning-up Day

Baltimore, Md.—Mayor Preston, Dr. James Bosley, Health Commissioner, and most city officials look with favor upon a suggestion of Fire Chief George Horton that hereafter Baltimore celebrate the anniversary of the big fire of February 7 and 8, 1904, with a general cleaning up of premises and destruction of rubbish and other fire-producing articles in cellars, yards, attics, etc.

Clean-Up Day Resulted in Establishing High Standards

Knoxville, Tenn.—While the carts are busy hauling off the garbage during the clean-up week the reports show that the movement of keeping cleaner yards and having the garbage hauled each week, that was inaugurated by the City Beautiful League, is having effect. Reports from various sections of the city are that not nearly so much garbage is found scattered on premises and the monthly reports of the chairman of the Board of Public Works shows that the daily haulings have been increased. The clean-up of last fall and last spring did much to educate the citizens for a cleaner city. Chairman Flenniken states he will keep all carts busy until the garbage has been removed.

Spokane to Have Bonfire Week

Spokane, Wash.—Suspension on all restrictions on burning rubbish and leaves for one week will be granted by Mayor Hindley to the people of Spokane in a proclamation. The Mayor said he would make his proclamation for a fall clean-up of the city at once, following decision of the Council as to what week to set aside. The Mayor is in favor of the week beginning November 15, and the Council probably will set the time at the next legislative meeting. "The object will be to allow the people to burn the fall leaves and other rubbish which has accumulated during the summer without going to the trouble of taking out a bonfire permit," said the Mayor. Fire Chief Myers is in line with the suggestion. "I would not object to an unlimited bonfire privilege for a week," he said, "providing, of course, the people used care in placing their fires. The privilege would result in much more of a clean-up than if citizens had to come downtown to get individual permits."

RAPID TRANSIT

Grades Puzzle Experts

Cleveland, Ohio.—City Engineer Hoffman declared that a low level connection between Clark avenue southeast and Clark avenue southwest would not permit the establishment of a street car line because of the steep grades. Engineers are now considering the erection of a high level bridge across the valley. Another plan is the low level connection and the third is the construction of a rolling lift bridge across the river. A report will be presented to the council when the work has assumed definite shape.

Aerial Tram to Cross Royal Gorge

Cañon City, Col.—At the next meeting of the City Council W. G. Haigler, of Colorado Springs, will ask for a franchise for the construction of an aerial railway across the Royal Gorge. It is understood that the proposed affair will consist of a series of great cables suspended from cliff to cliff across the gorge and from which will be hung large car-like cages for passengers. Haigler, with W. K. Green, capitalists of Ottawa, Kan., and Colonel Lew Ginger, of Colorado Springs, has been in consultation with members of the City Council and Business Men's Association, and the scheme has been pronounced feasible.

Street Cars Not Allowed to Enter City

Corunna, Mich.—The Corunna council has started suit in the circuit court to compel the Owosso & Corunna Electric Car Company, running between this city and Owosso, to cease operations. They allege the company has failed to live up to their franchise in not making repairs in the road, and consequently giving poor service. The road is owned by George Moore, of Detroit, and A. T. Atwood. A temporary injunction is asked, restraining the cars from entering the city.

Jeffris Line Will Be Granted Right of Way in City

Natchez, Miss.—The Southern Railway and Navigation Company, known as the Jeffris Road, operating seven miles of railway in Concordia Parish, La., and projected to run from Natchez to Alexandria, La., filed a proposition to buy a right of way through a bayou in Natchez, the property of the city. It was presented to the Board of Mayor and Aldermen, accompanied by blueprints, and the City Solicitor was instructed to prepare a proper option granting the right of way without cost for the property. The right of way will not be granted unless the company proposes to build and operate the line.

Norfolk to Have Pay-as-You-Enter Cars

Norfolk, Va.—After making an inspection of the street car system of Norfolk and Portsmouth, Vice-President Fritz Sitterding and General Manager W. B. Buchanan, of the Virginia Railway and Power Company, decided to recommend extensive improvements in both cities. Some of the tracks will be relaid, others welded and pay-as-you-enter cars installed by the first of the year.

City Roads to Be Valued

Chicago, Ill.—Valuation by a commission of experts of the elevated and surface street railroads was agreed on the initial step in the negotiations opened with the city by the men who are working on the traction merger. This, with three other steps, will be recommended to the local transportation committee. Traction officials met with city representatives and the subway commission to decide on the program for treating the eight suggestions made by the traction representatives as the basis for an agreement with the city. In addition to the valuation plan they decided on these things:

Tentative unification ordinance to be drafted by railway companies in connection with a representative of the city's legal department to be submitted to the general committee.

All subway plans to be submitted to the general committee and to the subway commission.

A series of public hearings to be held by the general committee for consideration and discussion of all questions.

MISCELLANEOUS**Curfew at Amarillo**

Amarillo, Tex.—As a result of a movement started several weeks ago by Chief of Police Snider, arrangements are now being perfected whereby the curfew ordinance will be revived and children under 15 years of age, not accompanied by their parents, will be removed from the streets after 9 o'clock, following the blowing of the whistle which will be installed at the plant of the Amarillo Water, Light and Power Company.

Tickets for Employees

Altoona, Pa.—During the fiscal year ending with last March the municipality of Altoona expended \$270 for street car tickets, they being used by the employes of the water department and the surveys division of the department of public works. The former used \$120 worth and the latter \$150 worth. As the chief officials of these departments have had the complimentary white tickets, it is possible that the bill in the future will be larger than in the past. The officials of these departments regard the expenditure of money for street car fare as an economy by the city, as the work of the employes takes them to remote sections of the city and much time would be lost if they were obliged to walk from place to place.

City Meter Inspector

Huntington, W. Va.—Commissioner Floyd Chapman has presented to the board of commissioners an ordinance providing for the appointment of a salaried "City Meter Inspector," whose chief duty shall be to inspect the meters now used by public service corporations for measuring gas, water and electricity. The ordinance provides that the inspector shall receive and make complaints concerning the defects that may arise in any meters and that he shall make a monthly report to the board of commissioners, who can in turn order the public service corporations to remedy such defects under penalty of fine of from \$25 to \$100.

LEGAL NEWS**A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities****Street Railways Franchise—Number of Passengers**

Minneapolis Street Railway Company vs. City of Minneapolis et al.—A street railway company accepting a franchise to operate a street car system in a city, subject to the right of the city at any time to designate other lines of railway as demanded by public necessities, or the extensions of existing lines, with the right of the city to grant to any other company the exclusive right to construct and operate a street railway in streets so designated on the company failing to comply with the orders of the city, may be put to its election on the adoption of an extension ordinance as to whether it will build the line ordered or allow another company to build it, and any future action by the city in exercising its rights under the franchise is within the scope of the franchise, and will not deprive the company of its property without due process of law nor impair the obligation of a contract.

An ordinance of a city limiting the number of passengers on each street car to 75, and imposing a penalty for its violation, is a valid exercise of the power of the city to regulate street car service of a company having a franchise to operate a street car system in the city.—United States Circuit Court, 189 F. R., 445.

Commission Form of Government

Perrett vs. Wegner.—The commission form of municipal government, while not following the tendency previously shown in the evolution of free popular government to avoid as far as possible the concentration of power in any one governmental office, is nevertheless a democratic form of government, which rests at last on the consent of a majority of the governed.—Court of Civil Appeals of Texas, 139 S. W. R., 985.

Street Paving Assessments—Repaving

Land & River Co. vs. City of Superior.—Statutes 1898, as amended by Laws 1909, provides that no abutting property shall be exempt from any assessment for paving with a permanent pavement having a concrete foundation until such property, if located in a city of the second class, shall have paid in the aggregate in assessments for street pavements in front thereof the sum of \$2 per square yard, such assessments in each case to include all that part of the roadway directly in front of the property and lying between the curb line and the center of such roadway, and that whenever such property has paid less than the amount required it shall be liable for any difference up to the full amount required. Held that property was assessable for repaving until there had been paid in the aggregate, for paving in front of it, \$2 per square yard for the street, between the present curb line and the center of the street, which should be reduced by the aggregate of previous amounts paid for paving between such lines as they existed when the former assessments were made, the expense of the curb being a part of the expense of the paving and the curb line being the line nearest the lot.—Supreme Court of Wisconsin, 132 N. W. R., 609.

Contractors' Bonds—Liability of Surety

Fidelity & Deposit Company of Maryland vs. Charles Hegewald Company.—The bond of a contractor to construct sewers for a city, conditioned on the contractor paying for all labor performed and materials used in carrying out the contract, covers the cost of repairs of machinery used in the work, and the person making such repairs may sue the surety therefor.—Court of Appeals of Kentucky, 139 S. W. R., 975.

Land Under Water—Taxation

Leary vs. Mayor and Aldermen of Jersey City et al.—Lands under water of a harbor which is fixed as the boundary of an incorporated township incorporated by statute defining its boundaries as "on the southeast by * * * harbor" are within the limits of the municipality, and taxable as such.—United States Circuit Court, 189 F. R., 419.

Defects in Streets Created by Contractor—Appeals

Gregg vs. City of Wilmington et al.—In an action for wrongful death brought against a contractor for negligence in piling bricks in a street, by the falling of which the plaintiff's intestate was killed, and joining the city for its negligence in permitting the pile of bricks to remain in the street, a verdict which finds specially that the contractor was not negligent and finds that the city was negligent is inconsistent, since the city's negligence was dependent upon that of the contractor, and a judgment setting aside the special findings in favor of the contractor and rendering judgment against the city on the other findings is reversible error.

In an action for wrongful death against a contractor and a city as codefendants, in which the city's liability for permitting a dangerous obstruction to remain in a street was dependent upon the primary negligence of the contractor in creating the obstruction, an answer by the city, denying that its codefendant was negligent and averring that if he was it was entitled to judgment over against him, is not bad as presenting inconsistent defenses.—Supreme Court of North Carolina, 70 S. E. R., 1070.

Street Improvements—Assessments—Statutes

Kinsey vs. Town of North Manchester.—Acts 1909, by repealing, without a saving clause, acts 1905, under which appraisers were appointed to reassess benefits upon street improvements, before such appraisers had made their report, deprived them of the power of making their report, reassessing benefits, or of proceeding further under such provision. The overruling of an objection to the appointment of appraisers to assess benefits in street improvement proceedings was harmless to the landowner, even if erroneous, where they never made any reassessment of benefits.—Supreme Court of Indiana, 95 N. E. R., 1107.

Submission of Question to Popular Vote—Appeal

Territory ex rel. Stockard vs. Mayor and City Council of Roswell, New Mexico.—The relator, and upward of 500 others, electors and residents of the city of Roswell, signed and presented to the Mayor and City Council of said city a petition for an election to determine whether Roswell would establish the commission form of government, so called, under the provisions of Acts of 1909 of the Assembly of New Mexico. The petition was referred to a committee of members of the Council. Under the circumstances recited in the statement of the case, which follows, held, that the withdrawals from the petition there described were effectual, and that the peremptory writ, which was granted pro forma, should have been refused. Where a motion to award a peremptory writ of mandamus did not specify as a ground therefor that the return to the alternative writ set up inconsistent defenses, that ground for sustaining the issuance of the peremptory writ will not be considered in the Supreme Court.—Supreme Court of New Mexico, 117 P. R., 846.

Contract with Engineer—Construction—Compensation

Town of Decatur vs. Jaudon.—Where, having reference to the contemplated construction of a system of water-works, a civil engineer made to the municipal authorities of the town proposing to construct the water-works a written proposition offering his services in the following language: "I will do all the work necessary to get up a complete set of plans and specifications for your proposed water-works; said plans and specifications will be such that you will be able to invite bids on the same; and after the contract is awarded from the bids I will supervise the construction of the work and see that the same is carried out according to the plans and specifications adopted by you. I will make a proposition to do all the work for the lump sum of \$1,500, this amount to include all expenses of getting up the plans and specifications and the supervision of the work after the same has been contracted"—and this proposition was accepted without additional stipulation or qualification, the engineer could not recover against the municipality for additional services and expenses which were rendered and incurred by him after the time fixed in a contract between the municipality and the contractors who were to construct the waterworks had expired. His right of recovery was limited to the lump sum named in the proposal.—Supreme Court of Georgia, 72 S. E. R., 351.

Taxation—Exemptions

Louisville & N. R. Co. vs. City of Louisville.—Under a city ordinance providing that, in order to induce the location of more manufacturing establishments within the city limits, any such establishments thereafter located in the city should be exempt for a period of five years from all taxation by the city, a railroad company which had for many years maintained its shops in the city, and which, finding such shops inadequate, erected new buildings on land, part of which it had purchased prior to the passage of the ordinance, installed new machinery, etc, but continued substantially the same work, was not entitled to the exemption. Since the Constitution requires a uniformity of taxation on all property, exemptions, like other cases of special privileges, are to be strictly construed. That a railroad company in building new shops believed that it would be exempt from taxation under an ordinance exempting from municipal taxation for a certain period manufacturing establishments thereafter located in the city did not entitle it to the exemption.—Court of Appeals of Kentucky, 136 S. W. R., 611.

Defective Streets—Liability

Boender vs. City of Harvey.—A city is not liable for injuries to a pedestrian by a defect in a street, unless it had notice of the defect, or of such facts and circumstances as would, by the exercise of reasonable diligence, lead a prudent person to such knowledge, whether the defect was caused by the act of a third person or by the failure of the city to make repairs.—Supreme Court of Illinois, 95 N. E. R., 1084.

Personal Injuries—Grass Plot—Barriers

City of Paducah vs. Simmons.—While a city could protect grass plots along sidewalks by suitable barriers, it was negligent in stretching a small, dark wire on stakes about a foot from the ground along the edge of the grass plot, such wire being calculated to cause injury to pedestrians rightfully attempting to cross the plot.—Court of Appeals of Kentucky, 139 S. W. R., 851.

Defective Sidewalk—Ice and Snow

Dempsey vs. City of Dubuque.—Plaintiff slipped on a hard ridge of ice and snow on a sidewalk, fell, and was injured. The ridge was some 16 feet long, and from 2 to 5½ feet wide. There were clear spaces on each side of the ridge and she could have walked in these with but little effort. It was daylight, and the condition of the walk was plainly visible. Held, that a verdict for plaintiff was unsustainable under an instruction that she could not recover if there was a clear space on the sidewalk in question, which she could have walked over, and if she saw, or could have seen by ordinary care and diligence, that there was a defect on such sidewalk in the nature of a ridge of ice or snow packed hard, but she still walked upon said ridge, or put herself in a position where she would have to walk upon or over such ridge while charged with knowledge of its presence, and knowing of another safer way on such walk which she could have used without material inconvenience to herself.—Supreme Court of Iowa, 132 V. W. R., 758.

Defective Highway—Injury to Policeman

Kennedy vs. Mayor, etc., of City of Savannah.—A policeman is not by reason of his position as an employee of a city precluded from recovering damages from the city for personal injuries caused by the city's neglect to keep a highway in proper repair. Though a policeman employed by a city to patrol a particular beat so materially deviates from the route he is instructed to follow while on that beat that if the case were one falling under the ordinary law of master and servant he could not (on account of his violation of rules and instructions) recover from his employer, the city, for any injury received by him through his encountering latent dangers, known to his employer and not known to him, nevertheless if at the time of the injury he is, in a usual and orderly way, traveling upon a public highway of the city and is hurt by a defect which the city has negligently allowed to remain in the highway, he is entitled to recover damages on the same terms that any other citizen would be. (a) Query: Do the ordinary doctrines of the law of master and servant apply as between a city and its police officers?—Court of Appeals of Georgia, 72 S. E. R., 160.

MUNICIPAL APPLIANCES

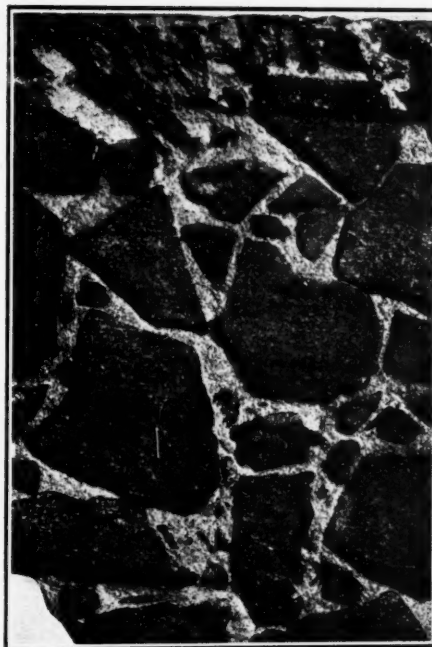
Hassam Granite Block Pavement

The Hassam Paving Company, Worcester, Mass., constructs a special form of granite block paving designed to meet the increasing demand for a better quality of stone paving than has hitherto been generally laid. The stone block are laid on the regular Hassam foundation, which consists of a concrete so made that it contains a greater percentage of stone and a less percentage of mortar than the concrete base as generally constructed. First broken stone varying in size from $1\frac{1}{2}$ to $2\frac{1}{2}$ inches are spread over the dirt subgrade, properly shaped, and rolled with a heavy steam roller. A cement grout mixed about four parts sand to one of cement is then flushed into the stone base filling the voids. This grout is prepared in special mixers which not only do good work but do it fast. The entire foundation is rolled again, tending to bring the grout up to the top if it has settled. A second light flushing of grout may be necessary.

The usual cushion coat of $1\frac{1}{2}$ inches of sand is spread over the concrete. The granite blocks to be laid on this are selected, carefully cut blocks measuring 4 to $4\frac{1}{2}$ inches in height, $3\frac{1}{2}$ to $4\frac{1}{2}$ inches wide and from 6 to 12 inches long. In selecting a filler for the

cabinet with the advantages of vertical filing, the familiar folders of the vertical file being replaced by strong pockets reinforced by wood strips on the top and suspended, keeping the maps and drawings smooth and clean. The large folders, or pockets, are closed half-way up, so that the prints are held in place, thus preventing crumpling and torn edges. Several manufacturers, contractors and others who saw it recognized its advantages, and the designer was called upon to make more cabinets of similar pattern.

An advantage claimed for this form of cabinet is the facility of finding a drawing once filed. On the inner side of the cover are eight cards, printed both sides, held in permanent metal racks. The cards are ruled for easy writing of index information and each bears index letters in stock cabinets. The envelopes are numbered 1 to 20, so that in filing a drawing for, say, special gearing made for Mr. Brown, in pocket 20, the index card would read, under the letter B, "Brown—gears, 20." A cabinet has a capacity of 700 to 1,000 drawings or blue prints, is dust-proof, and takes up about three and one-fourth square feet of floor space. As shown in one of the illustrations, the front may be raised and used as a handy support or table on



SECTION OF HASSAM FOUNDATION

New Precise Transit

Ledder & Probst, Boston, Mass., manufacture the new Precise Transit, which they claim is the strongest instrument made of its weight which is not greater than that of high-priced instruments. Some of the details of the specifications follow:

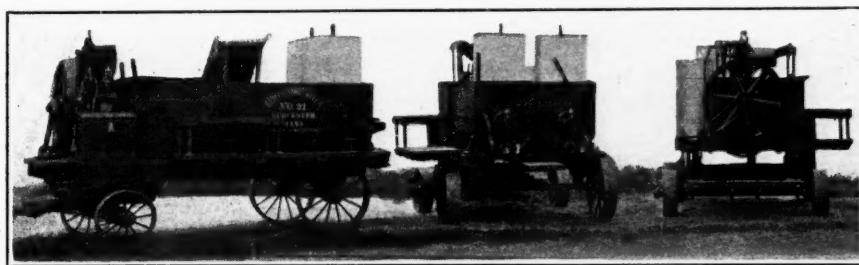
Telescope.—Length 10 $\frac{3}{4}$ inches, extending to 11 $\frac{1}{2}$ inches, permits reversing at both ends even when focusing at short distance; erecting, balanced, high magnifying power, achromatic terrestrial and of good definition.

Objective.—1 $\frac{1}{4}$ inches, power 26 diameters. Object Slide or Draw Tube.—The slide is cylindrical and running true its entire length, therefore keeping perfect alignment permanently; provided with dust protector. There is no opening for the rack and pinion in the object slide or draw tube of this instrument. If there were, the slide would be weakened. The rack and pinion are placed on the surface of the slide, and act as a brace. Means are provided to take up all wear and to keep the rack and pinion always in mesh.

Eye-piece.—Achromatic, giving plenty of light and large, clear, flat field; also screw arrangement for focusing on the cross wires.

Telescope Axis.—Length, 5 inches, improved; provided with dust caps to bearings and also means for taking up wear.

Vertical Arc or Circle.—Fixed, 5-inch diameter with double vernier; vernier is set between the standard and mounted on a separate and special casting, the vernier plate holder, and not screwed to the stand-



GROUT MIXERS USED IN HASSAM PAVEMENT CONSTRUCTION

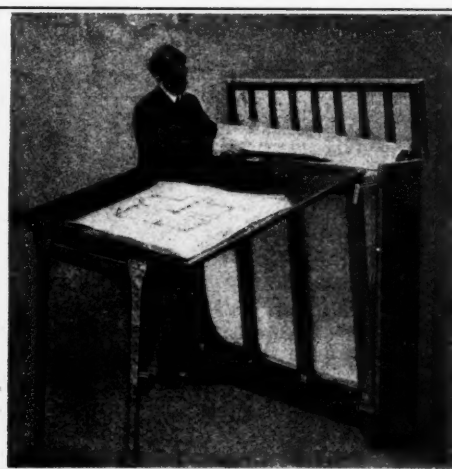
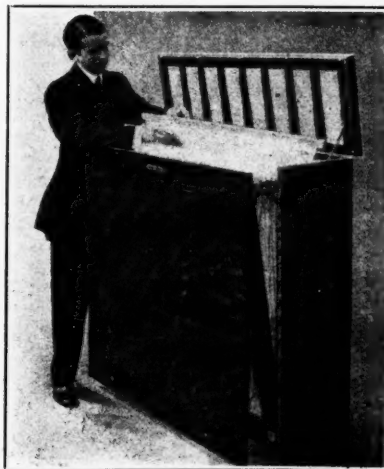
joints of the granite block the same principle is borne in mind as in making the foundation, namely, to make the percentage of stone in the whole body of the pavement as great as possible. Accordingly, after the blocks are laid clean pea stone is swept into the joints filling them as much as possible. The surface of the pavement is then made true by rolling or by tamping with 75 - pound rammers. Finally the grout mixers are brought out and the joints filled with mortar. The grout is delivered from the mixer to the point where it is wanted by a hose of suitable length and flexibility. The pavement is claimed to be nearly as smooth as asphalt and to be made of such durable materials that it is dustless from any disintegration of its own ingredients.

Vertical Blue Print Cabinet

The Yawman & Erbe Manufacturing Company, 424 St. Paul street, Rochester, N. Y., have placed on the market a vertical blue print cabinet, which follows the design for special cabinet made a few years ago by an engineer for the Chicago Association of Commerce. He knew the value of vertical files, but the maps required to be filed were too large to stand on edge without some support, so he devised a

which to examine the contents of the cabinet. It is entirely out of the way when closed, but instantly ready for use when wanted, and is never strewn with drawing materials or other things that would be in the way there.

The "Y and E" vertical blue print cabinet is carried in stock for drawings 40 x 36, or smaller, or 44 x 30, or smaller, but special sizes are made to order promptly.



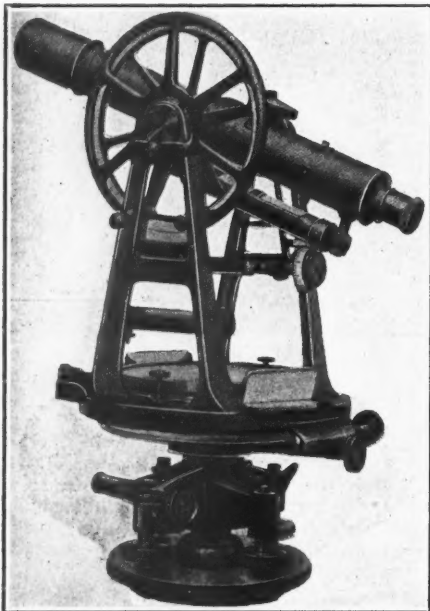
VERTICAL FILE FOR LARGE BLUEPRINTS

ard, which latter method has several disadvantages.

Main Part Casting.—Consists of standards, upper or vernier plate, center or spindle, nipple guard and tangent piece. These several parts are cast in one piece of suitable metal. The various attachments are mounted to this main part.

Standards.—Are thoroughly ribbed and of medium U-shape, allowing enough room for the compass box, so that the size of the compass needle is not lessened.

Verniers.—Two, double and exactly opposite, reading to one minute; verniers placed at 30 deg. to line of sight; covered with crystal plate glass and provided with shade glasses.



NEW PRECISE TRANSIT

Upper or Vernier Plate.—Reinforced to its utmost limit; vernier seats are milled out instead of turned and placed, so as to prevent ribbings of plate being cut, thus retaining the full strength and rigidity of the upper plate.

Level Vials.—Telescope level vial, 4 inches; plate level vials, 2½ inches; all bubbles graduated directly on the glass and thoroughly tested before mounting, to insure the definite sensitiveness selected for this type of instrument.

Compass.—Graduated to ½ deg.; figured 0 deg. to 90 deg. on each side of north and south; silvered graduations on inside face of compass; magnetic needle, 4 inches, with jewel center and made of the finest available magnetic steel and of the usual bar construction. Compass box is detachable and shifting.

Horizontal Circle.—Diameter, 6 inches to edge of graduation (6¾ inches over all); graduated with two rows of figures from 0 deg. to 360 deg. in opposite directions with figures inclined in the direction they should be read.

Graduations.—On solid silver throughout; figures engraved; verniers reading to single minutes.

Tangent Screws.—With opposing spiral springs.

Centers.—The female center of socket on which the horizontal circle is attached is made of hard drawn phosphor bronze.

Levelling Head.—The pitch of the screws is fine and the leverage longer than usual.

Foot Plate and Levelling Base.—This is of unusually broad construction and permits of a full ¾-inch shift. It is low and reinforced.

Tripod.—Split-leg, with head of hard and strong composition, cast in one piece, with aluminum cap.

Weight.—Instrument, 14½ pounds; tripod, 9 pounds.

Paving Brick Rattler

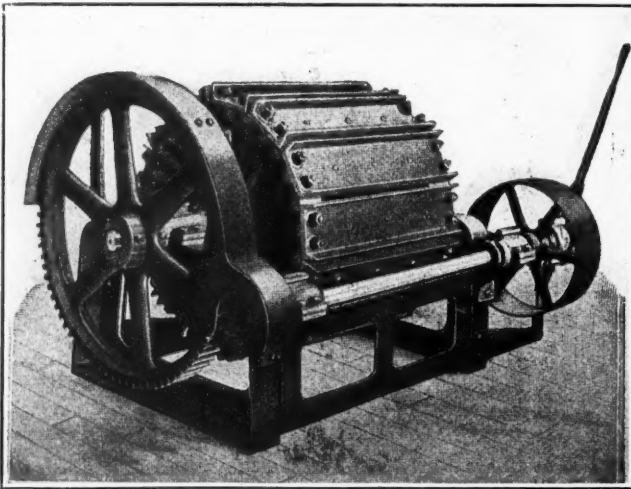
The Ceramic Supply & Construction Co., Columbus, O., have placed on the market a rattler for testing paving brick, made to conform to the specifications adopted by the National Paving Brick Manufacturers Association.

Some of the details of construction follow: The heads are cast with trunnions in one piece, with bearings 2½ by 6 inches. The heads are from ¾ to 1 inch thick. In outline they are a regular fourteen sided polygon, inscribed in a circle 28¾ inches in diameter. For each head there is a cast iron liner one inch in thickness, conforming to the outline of the head, but inscribed in a circle 28⅞ inches in diameter. This liner is fastened to the head by cap screws. These wear plates whenever they become worn down ½ inch should be replaced. These plates are made of hard machinery iron containing less than one per cent of combined carbon.

The staves are made of six-inch medium steel structural channels 27¼ inches long and weighing 15.5 pounds per lineal foot. The interior or flat side of each channel is protected by a lining or wear plate ¾-inch thick by 5½ inches wide by 10¾ inches long. The wear plates consist of medium steel plate and are fastened to the channel by ½-inch rivets. The rivet holes are countersunk on the face of the wear plate and the rivets are chipped off flush with the surface of the wear plate. The life of the wear plates is 150 tests.

The staves when bolted to the head form a band 20 inches long, inside measurement, between the wear plates of the heads. The barrel is mounted on a cast iron frame, which should be bolted to a foundation. It is driven by a gearing whose ratio of driver to driven is 1 to 4. The driving shaft on which the driving pinion is mounted is 1 15-16 inches in diameter; provided with 6-inch bearings. The pulley is 18 inches in diameter and 6½ inches in face.

The Ceramic Supply & Construction Co. are placing this machine on the market with the expectation that the increasing appreciation of the importance of testing brick will lead every city using paving brick and every manufacturer will install a rattler of its own. The convenience of being able to purchase a machine made in conformity with the standard specifications will be appreciated by people who perhaps would not undertake to construct a single machine for their own use.



STANDARD PAVING BRICK RATTLER

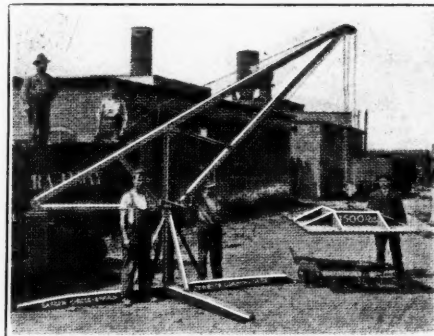
Small Derricks for Municipal Contractors

Sasgen Bros., 2744 Lincoln avenue, Chicago, Ill., and 103 Park avenue, New York, N. Y., are specialists in the construction of derricks. The illustrations show two types of small derricks which are useful to contractors for municipal work. The first illustration shows the circle swing derrick for unloading flagging, curbstone and the like from flat cars. It is easily fastened to any kind of a platform



DERRICK ATTACHED TO CAR

car and shifted within a few minutes' time. The manufacturers state that two men can raise and swing onto a wagon any kind of stone weighing up to 1500 pounds. The derrick is strongly built with two long bottom sills, one reaching over the car, the other along the side of the car, so that they can conveniently be clamped to the outside of the car. The weight of the derrick complete with fasteners is about 325 pounds.



DERRICK FOR UNLOADING CARS—RESTING ON GROUND

The other illustration shows a derrick which is useful for loading and unloading cars and wagons. It sets on the ground. This derrick has a height of 14 feet, a circle swing of 18 feet, weighs about 450 pounds and has a maximum capacity of 2000 pounds. It works to advantage, however, on much lighter weights and is frequently used, the manufacturers state, to unload clay pipe. The small amount of pipe broken when so handled is the chief advantage, although there is a saving in labor.

The company has recently placed on the market a setter derrick in which the top frame is extended forward, which makes it possible to hoist the load without scraping the derrick. The shaft boxes are so arranged that the drum and gear shafts can be taken out without loosening bolts which hold the boxes. The bottom and side pieces are connected with two malleable castings, the same as the top sheave frame.

NEWS OF THE SOCIETIES

National Municipal League.—The following program for the seventeenth annual meeting, Richmond, Va., November 13-16, has been issued by Secretary Clinton Rogers Woodruff:

All meetings of the League will be held in the Jefferson Hotel.

Monday, November 13.

2.30 P. M.—Meeting of the Executive Committee, Dr. Albert Bushnell Hart; Dorman B. Eaton, professor of government, Harvard University, Cambridge, Mass., presiding.

8.30 P. M.—Presiding officer, Hon. Walter L. Fisher, Secretary of the Interior, Washington, D. C., formerly secretary and later president of the Chicago Municipal Voters' League.

Annual address.

Address of welcome, Hon. D. C. Richardson, Mayor of Richmond.

Reply by presiding officer.

Annual address of the president of the National Municipal League, "Effective Municipal Government," Hon. William Dudley Foulke, Richmond, Ind.

Tuesday, November 14.

9 A. M.—Annual business meeting, Hon. Charles J. Bonaparte, of Baltimore, member of the Executive Committee and former president of the League, in the chair.

Report of the Executive Committee, Dr. Albert Bushnell Hart, Cambridge, Mass.

Report of the treasurer, George Burnham, Jr., Philadelphia.

Amendments to the Constitution and By-laws—report of committee, Charles Richardson, Philadelphia, chairman.

Report of the Nominating Committee, Camillus G. Kidder, Orange, N. J.

Election of officers and council.

"American Municipal Progress," Clinton Rogers Woodruff, Philadelphia.

"The Thralldom of Massachusetts Cities," Harvey N. Shepard, Boston, late candidate for Attorney-General of Massachusetts.

"The Problems of Small Cities; Particularly of the South," Thomas M. Pittman, City Attorney, Henderson, N. C.

"City Government by Commission," presented by Richard S. Childs, chairman.

Round Table Luncheon, 1 P. M., E. H. Crump, Mayor of Memphis, Tenn., presiding officer. The discussion will be opened by Rear-Admiral F. E. Chadwick, of Newport, R. I., who has been a prominent and vigorous advocate of the Newport plan as opposed to the commission government plan. President Foulke's annual address will also be a proper subject for discussion at this conference.

Municipal Efficiency—"Antitoxin for Municipal Waste and Corruption" (3 P. M., Hon. William Dudley Foulke presiding), Richard Henry Dana, Cambridge, Mass., chairman Council of the National Civil Service Reform League.

"Municipal Civil Service Reform," Hon. Charles J. Bonaparte, Baltimore, former Attorney-General of the United States.

"Excess Condemnation and Special Assessments," Lawson Purdy, chairman, president Board of Taxes and Assessments, New York City.

"The German Imperial Unearned Increment Tax," Professor Robert C. Brooks, of the University of Cincinnati.

6.30 P. M.—Civic Secretaries—Meeting and dinner of the Civic Secretaries' Committee, Elliott H. Goodwin, New York, presiding.

9 P. M.—A smoker for the men at the Commonwealth Club and an entertainment for the ladies at the same hour will be arranged for by the local committee.

Wednesday, November 15.

9.30 A. M. (Hon. William Dudley Foulke presiding)—Municipal Finances and Health—Report of the Committee on City Finances and Budgets. George Burnham, Jr., Philadelphia, chairman.

Report of the Committee on a Programme for the Improvement of Methods of Municipal Administration. Dr. W. W. Willoughby, of the President's Commission on Economy and Efficiency, chairman.

"Is a Standard of Municipal Efficiency Feasible and Desirable?" Dr. Jesse D. Burks, director Philadelphia Bureau of Municipal Research.

"The Chicago Commission on City Expenditures," Professor Charles E. Merriam, University of Chicago.

"The Results of the Requirements of Uniform Reports with Special Reference to Municipal Indebtedness," Charles F. Gettemy, director Massachusetts Bureau of Labor.

"The Duties of a Controller with Special Reference to Independent Inspection of Municipal Work," Hon. John M. Walton, Controller Philadelphia.

"Economy and Efficiency in Municipal Health—Administration Work," Selskar M. Gunn, Boston, assistant professor of Sanitary Biology and Public Health, Massachusetts Institute of Technology.

Round Table Luncheon, 1 P. M.—"Housing Health and Morals."

3 P. M.—"Electoral Reform and Civic Surveys."

"The Swiss Electoral System," William E. Rappard, department of government, Harvard University.

"Preferential Voting," Reginald Mott Hull, Cambridge, Mass.

"Civic Surveys," Thomas H. Mawson, Liverpool, England, author of "Civic Art."

Following the afternoon session Governor and Mrs. William Hodges Mann will tender a reception at the Executive Mansion to the members and delegates.

7.30 P. M.—Dinner to delegates at the Hotel Jefferson.

Thursday, November 16.

9.30 A. M.—Hon. William Dudley Foulke, presiding.

"Franchise and Education."

Report of the Committee on Franchises, Robert Treat Paine, Boston, chairman.

"The Outline of a Model Street Railway Franchise," Dr. Delos F. Wilcox, franchise expert of the Public Utilities Commission of New York City, and James W. S. Peters, Kansas City, president of the City Club, Kansas City.

"Civic Education," report from the committee, Arthur W. Dunn, chairman, New York.

"The Police and Liquor Problems."

"The Police Problem with Special Reference to the Social Evil in Its Relation to Municipal Government," Howard S. Gans, New York, formerly assistant district attorney of New York.

Report of the Committee on Liquor, Camillus G. Kidder, Orange, N. J.

"The Prohibition Movement in the South," Hon. William H. Thomas, Montgomery, Ala.

The report of the committee and of Judge Thomas's paper will be the subject of discussion at the round table luncheon, of which Mr. Kidder will serve as presiding officer.

Association for Standardizing Paving Specifications.—The third annual meeting of the association will be held at the Hotel Grunewald, New Orleans, La. The date of the meeting has been changed to the week of January 8th to the 13th inclusive, 1912. Delegates may make reservations through Capt. W. J. Hardee, City Engineer, City Hall, New Orleans, La. In order that the work of the various committees may be expedited and just criticism avoided, if possible, the Association requests that any one advocating a change in the specifications, as published in the copyrighted proceedings of the second annual meeting held in New York this year, address the proper chairman suggesting such changes in writing, with the reasons therefor, at the earliest possible date. All communications addressed to the secretary after January 4th should be directed to the Hotel Grunewald. John B. Hittell, Secretary-Treasurer, 5917 Winthrop Avenue, Chicago, Ill.

Calendar of Meetings

November 14-17.

American Road Builders' Association.—Annual Convention, Rochester, N. Y.—E. L. Powers, Secretary, 150 Nassau St., New York City.

November 15-17.

League of Nebraska Municipalities.—Annual Meeting, Omaha, Neb.—R. C. Ozman, Secretary, Lincoln, Neb.

November 17-18.

Ohio Society of Mechanical, Electrical and Steam Engineers.—Annual Meeting, Canton, O.—F. E. Sanborn, Secretary, Ohio State University, Columbus, O.

November 20-24.

American Association for Highway Improvement.—First Annual Convention, Richmond, Va.—Logan Waller Page, President, United States Office of Public Roads, Washington, D. C.

November 24-25.

New Jersey Sanitary Association.—Annual Meeting, Lakewood, N. J.—J. A. Exton, Secretary, 75 Beech St., Arlington, N. J.

December 4.

American Society of Refrigerating Engineers.—Annual Meeting, New York City.—Wm. H. Ross, Secretary, 154 Nassau St., New York City.

December 4-9.

American Public Health Association.—Annual Convention, Havana, Cuba.—William C. Woodward, M.D., Secretary, District Bldg., Washington, D. C.

December 5-8.

American Society of Mechanical Engineers.—Annual Convention, New York City.—Calvin W. Rice, Secretary, 29 W. 39th St., New York City.

December 11-13.

Association of American Portland Cement Manufacturers.—Annual Meeting, New York City.—Percy H. Wilson, Secretary, Land Title Building, Philadelphia, Pa.

December 12-14.

American Institute of Architects.—Annual Convention, Washington, D. C.—Glenn Brown, Secretary, The Octagon, Washington, D. C.

December 20-22.

American Institute of Chemical Engineers.—Annual Meeting, Washington, D. C.—J. C. Olsen, Secretary, Polytechnic Institute, Brooklyn, N. Y.

December 27—January 3.

American Association for the Advancement of Science.—Annual Meeting, Washington, D. C.—L. O. Howard, Secretary, Smithsonian Institute, Washington, D. C.

January 29-February 3, 1912.

Second Annual New York Cement Show—Madison Square Garden.—J. P. Beck, General Manager Cement Products Exhibition Co., 72 W. Adams St., Chicago, Ill.

February 21-28.

Fifth Annual Chicago Cement Show—Coliseum.—J. P. Beck, General Manager Cement Products Exhibition Co., 72 W. Adams St., Chicago, Ill.

March 14-21.

First Annual Kansas City Cement Show—Convention Hall.—J. P. Beck, General Manager Cement Products Exhibition Co., 72 W. Adams St., Chicago, Ill.

PERSONALS

The following Mayors have been elected:

NEW YORK

Albany—Joseph B. McEwan.
 Amsterdam—Jacob H. Dealy.
 Auburn—Thomas H. O'Neill.
 Binghamton—John J. Irving.
 Cohoes—C. E. Carruth.
 Corning—Frederick Ellison.
 Elmira—Daniel Sheehan.
 Fulton—John E. Boland.
 Geneva—R. H. Gulven.
 Gloversville—Alden L. Henry.
 Hornell—Frank J. Nelson.
 Ithaca—John Reamer.
 Johnstown—Abram Harrison.
 Kingston—Roscoe Erwin.
 Little Falls—Frank H. Shall.
 Mount Vernon—Edwin W. Fiske.
 Newburgh—John B. Corwin.
 New Rochelle—Frederick H. Waldorf.
 Olean—Peter C. Foley.
 Oneida—Otto Pfaff.
 Oneonta—Frank D. Blodgett.
 Oswego—David D. Long.
 Plattsburg—A. G. Senecal.
 Port Jervis—W. H. Nearpass.
 Rochester—Hiram H. Edgerton.
 Rome—Stewart E. Townsend.
 Schenectady—Dr. George R. Lunn.
 Syracuse—Edward Schoeneck.
 Tonawanda—Mr. Foillette.
 Troy—Cornelius F. Burns.
 Utica—Frank J. Baker.
 Watertown—Francis M. Hugo.
 Yonkers—James T. Lennon.

OHIO

Ada—W. L. Campbell.
 Akron—F. W. Rockwell.
 Alliance—A. Spidel.
 Ashtabula—I. H. Pardee.
 Ashland—C. P. Winbigler.
 Athens—Charles H. Slaughter.
 Barberton—Wm. S. Mitchell.
 Batavia—E. O. Lease.
 Bellefontaine—Walter Pratt.
 Bellaire—Henry Washman.
 Belle Center—Joseph Dennis.
 Bellevue—H. F. Bellmyer.
 Bowling Green—D. C. Van Voorhis.
 Bryan—O. W. Gleason.
 Bridgeport—Thomas McConnaughy.
 Bucyrus—E. J. Songer.
 Cadiz—Chas. G. Addleman.
 Cambridge—James H. Dilley.
 Canton—Harry Schieling.
 Carrollton—A. H. Hise.
 Celina—H. C. Miller.
 Columbus Grove—Dr. Ralph P. Killen.
 Chillicothe—James C. Cahill.
 Cincinnati—Henry T. Hunt.
 Circleville—John C. Galler.
 Cleveland—Newton D. Baker.
 Columbus—George J. Karb.
 Corning—Samuel Eichenbaum.
 Coshocton—G. W. Cassingham.
 Creston—W. J. McGlennon.
 Defiance—W. A. Schmaltz.
 Delaware—Bert B. Lease.
 Doylestown—John Whitman.
 East Liverpool—R. J. Marshall.
 East Palestine—A. B. Hennacy.
 Elyria—David S. Troxwell.
 Fairport—August Wolff.
 Findlay—E. L. Graves.
 Fremont—C. Stausmyer.
 Galion—H. H. Hartman.
 Gallipolis—H. L. Cadot.
 Greenville—G. F. Schermund.
 Hamilton—Thad. Staub.
 Hillsboro—James A. Williams.
 Huron—Adam P. Beckloff.
 Ironton—T. J. Kennedy.
 Jefferson—H. J. Redmond.
 Kent—J. A. Minich.
 Kenton—Mr. Thompson.
 Lancaster—C. H. Sexauer.

Lebanon—Albert Stubbs.
 Leetonia—E. W. Ballentine.
 Lima—Corbin S. Shook.
 Lisbon—B. F. Hennessy.
 Lodi—P. C. Fullerton.
 Logan—A. F. Hulse.
 London—John Poncake.
 Lorain—Thos. M. Pape.
 Magnetic Springs—William King.
 Malta—C. E. Coulson.
 Mansfield—William E. O'Donnell.
 Marietta—Chas. F. Leeper.
 Marion—Claude Walters.
 Massillon—Arthur M. Koley.
 Marysville—Samuel McIntyre.
 McArthur—William Jacobs.
 McConnelsville—J. D. McLucas.
 Medina—R. L. Gehman.
 Mingo Junction—D. G. Maxwell.
 Milford Center—Frank Fullington.
 Millersburg—Sanford H. Marchand.
 Mt. Gilead—D. E. Smith.
 New Lexington—Rudd B. Gue.
 Napoleon—James V. Mullen.
 New Philadelphia—A. C. Powelson.
 Niles—John Naylor.
 Norwalk—E. C. Martin.
 North Baltimore—F. P. Clark.
 Oberlin—J. D. Yocom.
 Orrville—E. P. Welleman.
 Ottawa—T. F. McElroy.
 Painesville—Wynn S. Smith.
 Paulding—J. A. Armstrong.
 Piketon—W. H. Patterson.
 Port Clinton—George Pledger.
 Salem—John S. McKay.
 Sandusky—George T. Lehrer.
 St. Mary's—Scott Welkens.
 St. Clairsville—Henry M. Davies.
 Shelby—G. I. Miller.
 South Charleston—John B. Allen.
 Steubenville—Geo. Oleich.
 Tiffin—Walter K. Keppel.
 Toledo—Brand Whitlock.
 Troy—John McClain.
 Unionville Center—William Goff.
 Upper Sandusky—Frank Jones.
 Urbana—David Green.
 Washington—H. B. Smith.
 Warren—Z. F. Craver.
 Wapakoneta—John J. Hay.
 Wauseon—W. C. Fink.
 Wooster—F. M. Van Over.
 West Salem—C. A. Wiley.
 West Union—Homer Sutterfield.
 Wellsville—W. H. Moore.
 Wellington—W. D. Hall.
 Wilmington—Amos Hoffman.
 Woodsfield—McClellan Springs.
 Wooster—F. M. Van Over.
 Xenia—William Dadds.
 Youngstown—F. A. Hartenstein.
 Zanesville—J. H. Schofield.

PENNSYLVANIA

Allentown—Charles P. Rinn.
 Altoona—Simon H. Walker.
 Chester—William Ward, Jr.
 Easton—David W. Nevin.
 Erie—William J. Stern.
 Harrisburg—John K. Royal.
 Johnstown—Joseph Cauffiel.
 Lancaster—Frank B. McClain.
 Lebanon—John P. Longnecker.
 Lock Haven—George Kreamer.
 Wilkes-Barre—Edward A. Morgan.
 Williamsport—L. M. Castner.
 York—John R. Lafean.

CONNECTICUT

Bridgeport—Clifford B. Wilson.
 Hartford—Wm. S. Congdon.
 Waterbury—Francis T. Reeves.

RHODE ISLAND

Providence—Henry Fletcher.
 Woonsocket—Raphael P. Daignault.

KENTUCKY

Lexington—J. Ernest Cassidy.
 Paducah—Thos. N. Hazelip.

INDUSTRIAL NEWS

Cast Iron Pipe.—Chicago: The situation as usual at this time of the year is quiet. Prospects for the coming spring are considered unusually bright. Quotations: 4-inch, \$26.50; 6 to 12-inch, \$24.50; 16-inch and up, \$24. Birmingham: Foundries now running are operating at a satisfactory rate with some margin of profit. Inquiries are lacking. Quotations: 4 to 6-inch, \$23; 8 to 12-inch, \$22; over 12-inch, average, \$21. New York: The demand for small lots continues moderately active. Quotations: 6-inch, carloads, \$21 to \$22.

Lead.—Market is steady. Quotations: New York, 4.25c; St. Louis, 4.15c.

Street Lighting.—The Sterling Electrical Manufacturing Co., Warren, O., has published an attractive illustrated booklet under the caption "Warren Beautiful." The largest part of the booklet is occupied with the text and illustrations of a paper read by William Coale, treasurer of the Sterling Electrical Manufacturing Co., before the meeting of a commercial association in response to a request to prepare an article on the topic "The First City in the United States to Adopt Mazda Street Lighting to the Exclusion of all Other Street Lighting Methods." A copy of the contract between the Director of Public Service of Warren and the Warren Water & Light Company for installing and maintaining the lighting system, as well as some cost data are added.

Steel Tanks.—The Warren City Tank & Boiler Company, Warren, Ohio, will shortly begin the erection of an addition to its plant, 50 x 100 ft., to be used for warehouse purposes. The company will also erect a steel crane runway to accommodate a large crane for convenient handling of supplies and finished products.

Steam Rollers.—The Kelly Road Roller Company, Springfield, Ohio, is said to have plans under way for an addition to its plant, but no details have yet been made public.

Lighting Standards.—The Eagle Casting Company, Winchester, Ky., has been given the contract for the erection of a large number of ornamental iron standards used in the new lighting system in the business district of Louisville.

Wood Preservatives.—The Robeson Preserve Products Company, Port Huron, Mich., with \$100,000 capital stock, has been organized to manufacture chemical and preservative products for wood, iron and steel.

Dump Wagon.—The Columbia Wagon Co., of Columbia, Pa., has made a number of improvements in its new model Susquehanna dump wagon. A patent equalizer has been placed in the rear for lifting the steel lined bottom doors, one before the other, thereby giving an opportunity to place a steel band along the entire length of one door so as to prevent any leakage of dirt or sand when the doors are closed. The wheel base is 8½ ft. for a 1½-yd. wagon, and the whole construction has been lightened as much as is consistent with strength. Solid collar axles and the best grade of second-growth spokes are used. The wagons are now built in 1½, 2 and 3-yd. sizes.

New Corporations

Chicago Mixing & Conveying Co., Chicago; manufacturing mixing and conveying machinery; capital, \$10,000. Incorporators: Geo. Gillette, R. T. Elwell, Russell P. Fisher, Chicago.

The Dustoline for Roads Co., Summit, N. J.; manufacturers a liquid known as Dustoline for Roads; oil, etc.; capital, \$50,000. Incorporators: Edwin R. Lamson, Wm. J. Lamson, Frederick L. LaRow, 120 Summit avenue, Summit, N. J.

West Coast Construction Co., Corporation Trust Co., of America; capital \$1,000,000. Incorporators: E. E. McWhiney, Wm. J. Maloney, Herbert E. Latter, Wilmington, Del.

U. S. Steel Tank & Pipe Co., Chicago; general manufacturers; capital, \$10,000. Incorporators: Henry N. Miller, S. M. Schnell, A. C. Meyer, Chicago.

Consumers Electric Co. of Paxton, Ill.; operate an electric light, heat and power plant; capital, \$50,000. Incorporators: H. A. Stevens, C. E. Bengston, C. A. Nordgren, Leo Koretz, Chicago.

Winston Bros. Co., Minneapolis Corporation; contract and construction work; capital, \$600,000. Incorporators: Silas H. Strawn, First National Bank Building, Chicago.

The Dayton Turbine Pump Company, Dayton, Ohio; capital, \$100,000. Incorporators: Edward R. Kirby, Arthur J. Stevens, Nelson Emmons, Jr., and others, all of Dayton.

The Morocco Water Company, Morocco, Ind.; capital, \$50,000. Incorporators: C. E. Zollars, C. R. Blakesless and W. B. Bauer.

West Hammond Gas & Electric Company, West Hammond, Ill.; capital, \$5,000; light, heat and power; Incorporators: Harry W. Darling, George F. Borman, Jefferson L. Fulton.

Sewahe Disposal & Water Systems Company, Philadelphia, Pa.; capital, \$10,000.

Kutzown & Tipton Gas Company, Kutzown; capital, \$5,000.

Citizens' Electric & Gas Appliance Company, Johnstown, Pa.; capital, \$25,000.

Highway Construction Company, Columbus, O.; capital, \$10,000. Incorporator: Frank C. Huling.

Erie Pump & Engine Works, Erie, Pa.; capital, \$50,000. Incorporators: J. G. Pradt, Milton W. Shreve and D. H. Dumond.

Saskatchewan Bridge & Iron Company, Ltd., Moose Jaw, Sask., Canada; capital, \$250,000. This is practically a reorganization of the Moose Jaw Machine Company, Ltd.

Pennsylvania Street Railway Tie Co., Dover, Del.; capital, \$10,000,000. Incorporators: P. R. Hansel, Philadelphia; George H. Martin and S. G. Seymour, Camden, N. J.

Kehoe Light & Power Co., Fort Wayne, Ind.; to furnish light and power to suburban towns; capital, \$100,000.

Keokuk Brick & Tile Co., Keokuk, Ia.; capital, \$50,000. Incorporators: Frank W. Sawn, William Scott, Paul S. Peckstein, Frank L. Griffey, P. S. Hentel and J. N. D. Dickensen.

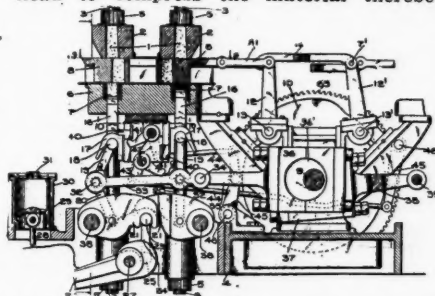
The Oliver Concrete Machinery Company, Des Moines, Ia.; capital, \$100,000. Incorporators: C. Dooersmith, E. D. Francesco and F. E. Neis.

United Water and Guarantee Company, Harrisburg, Pa.; capital, \$1,000,000.

PATENT CLAIMS

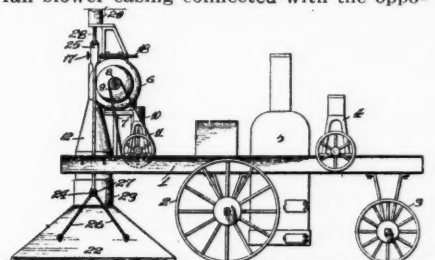
1,007,831. ASPHALT-PRESS. George E. Whitney, Yonkers, N. Y., assignor to the International Pavement Company, Hartford, Conn., a corporation of Connecticut. Serial No. 341,335.

A press of the character described comprising a fixed compression head comprising an abutment, an opposing plunger, means to move said plunger toward said head to compress the material therebetween, and elastic fluid actuated excessive compressive movement preventing connections for said plunger whereby an increase of compressing action ceases when a maximum pressure shall have been attained, said connections maintaining an unvarying, predetermined maximum pressure.



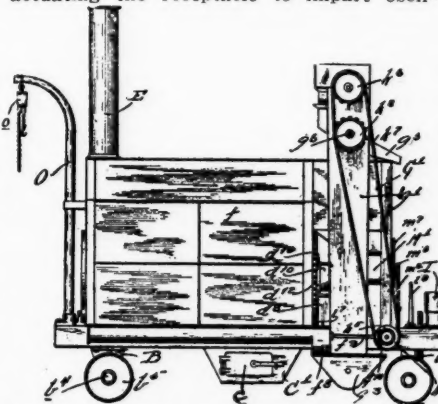
1,007,173. MACHINE FOR HEATING SURFACES. Frank J. Ballintine, Kansas City, Mo., assignor to Parker-Washington Company, Kansas City, Mo., a Corporation of West Virginia. Serial No. 512,804.

In a machine for heating surfaces, a frame, a vertically disposed combustion chamber carried by said frame, a hood provided with a neck mounted over the lower end of said combustion chamber, a fan blower casing connected with the opposite end of the combustion chamber, a vertically disposed burner projecting into the upper end of said combustion chamber, a fan mounted in said fan blower casing above the discharge end of the burner, and a horizontally disposed baffle plate located in the combustion chamber between the hood and fan blower and beneath the discharge end of the burner.



1,007,689. PORTABLE ASPHALT PLANT. Charles E. Guelich, Chicago, Ill. Serial No. 421,006.

In a machine of the class described, a movable closed mixing and cooking receptacle, mixing blades therein, means actuating the receptacle to impart oscillating movement to the contents, and a plurality of bins on each side of the receptacle and curved on the inner sides to afford a space between the same and receptacle.



1,007,832. ART OF MANUFACTURING COMPRESSED ASPHALT PAVING-BLOCKS. George E. Whitney, Yonkers, N. Y., assignor to George B. Upham, Boston, Mass. Serial No. 557,276.

That improvement in the art of manufacturing compressed bituminous paving blocks which is characterized by heating

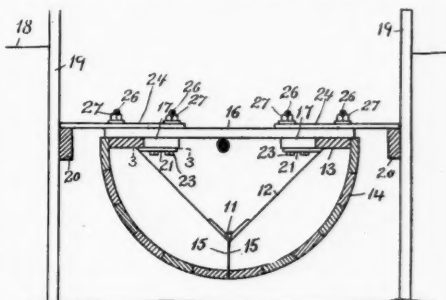
crushed stone particles; mixing said heated stone particles with heat-softened bituminous cement and thereby providing each of said particles with a heat-retaining bituminous coating tending to develop different temperatures at different portions thereof; preliminarily compressing a segregated batch of the stone and bituminous cement so mixed, by relatively low pressure, to effect a partial compacting of said batch; following such preliminary compression by a period of comparative inactivity in compression of the batch, permitting conduction of heat throughout the batch to establish more uniform temperature in the bituminous cement and thereby to render the latter more uniformly fluid and of more homogeneous consistency and adhesiveness; and subsequently applying relatively high pressure to force the stone particles and bituminous cement into closer relation as a unitary block.

1,007,833. MANUFACTURE OF COMPRESSED ASPHALT PAVING-BLOCKS. Walter S. Wilkinson, Wytheville, Va., assignor to George B. Upham, Boston, Mass. Serial No. 548,673.

That improvement in the art of manufacturing compressed asphalt paving blocks which consists in crushing and heating a comparatively non-absorbent stony ingredient to form a part of the mineral aggregate; pulverizing a comparatively absorbent stony ingredient to provide fines for the remainder of the mineral aggregate mixing the stony ingredient and fines; and uniting the particles of the mixed non-absorbent and absorbent aggregate by forming between them a permanently structurally-malleable cementitious union by first treating the stony particles to a suitable oil coating which remains substantially as an oil coating on the non-absorbent particles and permeates more or less the absorbent fines of the aggregate, and then mixing the hot coated and permeated stony particles with a heat softened block supporting asphaltic cement, segregating the mass into relatively small batches and separately compressing, compacting and readjusting said small batches of hot stony ingredients and hot cement into unitary block form by heavy pressure in a closed mold to produce the structurally-malleable block for use.

1,008,264. MOLD FOR CONCRETE. Peter W. Hill, Boston, Mass. Serial No. 583,197.

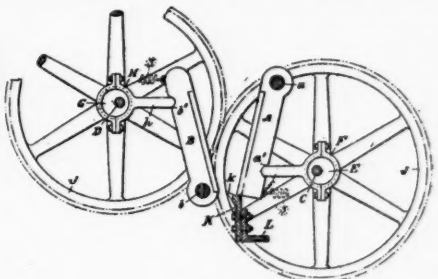
A mold comprising duplicate sections having a hinge connection adjacent one end, confronting longitudinally extending beams at the other ends of said sections, spreaders extending transversely of said



sections and provided with shoulders for abutting the inner longitudinal edges of said beams, plates adjustably connected to said shoulders and adapted to be extended beneath said beams, and support-engaging extensions adjustably connected to the ends of said spreaders.

1,007,935. CRUSHER. John P. Fox, Pittsburgh, Pa. Serial No. 613,045.

In a crusher, a pair of opposing jaws, one pivoted to crush objects between them, at its upper portion and the other at its



lower portion, a separate driving shaft for each jaw, means connecting each shaft to its respective jaw for oscillating the same, and means for causing the jaws to operate toward and from each other in unison.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards.

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO.
STREET IMPROVEMENTS				
Ohio.....	Cincinnati.....	Nov. 17, noon.....	Constructing macadam and tar binder.....	Director Public Service.
Kentucky.....	Louisville.....	Nov. 17.....	Paving street with sheet asphalt with brick gutters.....	Board Public Works.
Ohio.....	Cincinnati.....	Nov. 17.....	Improving street.....	Cd. Co. County Com. (A. Dreih).
Maryland.....	Annapolis.....	Nov. 18, 11 a.m.....	Constructing concrete walks and steps at U. S. Naval Hospital.....	Bur. of Yards & Docks, Wash., D. C.
Nebraska.....	Oakland.....	Nov. 18, 8 p.m.....	Constructing brick walk.....	A. E. Wickstrom, City Clerk.
Oklahoma.....	Falls Valley.....	Nov. 20.....	Constructing concrete street crossing.....	Russ Mitchell, City Clerk.
Ohio.....	East View.....	Nov. 20, noon.....	Grading street and constructing sidewalks.....	J. G. Litzel, Clerk.
New Jersey.....	Paterson.....	Nov. 22, 4 p.m.....	Grading, curbing and guttering Fourth Avenue.....	F. A. Pease Engr. Co., Cleveland.
Delaware.....	Ft. Du Pont.....	Nov. 22, 11 a.m.....	Constructing macadam roads.....	Board Public Wps.
Ohio.....	Mansfield.....	Nov. 23, m.....	Grading roads.....	Quartermaster,
Missouri.....	Elsberry.....	Nov. 23, m.....	Constructing 8½ miles macadam and gravel roads.....	County Comm.
Ohio.....	Cincinnati.....	Nov. 24, m.....	Constructing concrete culvert.....	Hurricane Twp. Gravel Rd. Co.
New Jersey.....	Newton.....	Nov. 24, m.....	Grading and macadamizing 2.87 miles road.....	County Comm.
Florida.....	Jacksonville.....	Nov. 24, 10 a.m.....	Paving, 6,000 linear ft. road with asphalt macadam and brick.....	A. H. Konkle, Co. Engr.
New York.....	Albany.....	Nov. 27-29.....	Improving state highways.....	County Comm.
Missouri.....	Lancaster.....	Nov. 27, 7 p.m.....	Constructing concrete sidewalk.....	State Comm. Highways.
New Jersey.....	Paterson.....	Nov. 29, 2 p.m.....	Resurfacing with asphalt concrete.....	S. W. Mills, Mayor.
New York.....	Albany.....	Nov. 29, 1 p.m.....	Constructing 3.45 miles road.....	W. H. Mason, Chm. Rd. Com.
Ohio.....	Cincinnati.....	Dec. 1, m.....	Improving road.....	State Highways Com.
Alta., Can.....	Edmonton.....	Dec. 1, noon.....	Constructing 100,000 sq. yds. wood block, asphalt block, sheet asphalt, bit. or other pavement.....	County Comm.
Pennsylvania.....	Glassport.....	Dec. 9, 8 p.m.....	Grading, paving and curbing Arch Street.....	City Commissioner.
Indiana.....	Laporte.....	Jan. 11, 1912.....	Constr. asphalt concrete pavement on Pine Lake Ave.....	M. E. Randell, Boro. Clerk.
SEWERAGE				
Dist. of Col.....	Washington.....	Nov. 17, 2 p.m.....	Constructing sewers.....	District Commissioner.
Utah.....	Salt Lake.....	Nov. 17, 7:30 p.m.....	Constructing pipe sewers in number of streets.....	Board Pub. Works.
Zew Jersey.....	Roselle.....	Nov. 17, 8 p.m.....	Constructing 600 ft. 8-in. pipe sewer.....	J. L. Bauer, Borough Engineer.
Indiana.....	Terre Haute.....	Nov. 17.....	Constructing 32 vitrified pipe sewers.....	Don Roberts, City Engineer.
Missouri.....	Caruthersville.....	Nov. 20, 9 p.m.....	Excavating 3,000,000 cu. yds. for drainage canals.....	B. M. Tinsley, County Clerk.
Iowa.....	Burlington.....	Nov. 20.....	Constr. 770 ft. 9-in. pipe sewer and 500 ft. 4-in. also 4 manholes.....	City Clerk.
New Jersey.....	South Orange.....	Nov. 20, 8 p.m.....	Constructing 10,000 ft. 8 in. sewers and appurtenances.....	Board Trustees.
Minnesota.....	Eveleth.....	Nov. 21, 8 p.m.....	Constructing sanitary sewer.....	E. P. McIntyre.
New York.....	Buffalo.....	Nov. 22, 11 a.m.....	Constructing brick and tile sewers.....	F. G. Ward, Com. Pub. Works.
New Jersey.....	Plainfield.....	Nov. 27, 8 p.m.....	Construct. 2,750 ft. 8-in. clay pipe sewer, 676 ft. cast iron pipe, pumping plant and appurtenances.....	J. T. MacMurray, City Clerk.
Illinois.....	Edwardsville.....	Mar. 1.....	Constr. about 3,000 ft. of 8 to 18-in. pipe sewers.....	C. L. Pitchford.
WATER SUPPLY				
Nebraska.....	Wilcox.....	Nov. 17, 9 a.m.....	Constructing water works.....	Merchon, Village Clerk.
Illinois.....	Rock Island.....	Nov. 17, 2 p.m.....	Constructing filtration plant at arsenal.....	Liet. Col. G. W. Burr.
California.....	Los Angeles.....	Nov. 17.....	Constructing 5 miles steel syphons for aqueduct; required lengths are: 889 ft. of 8-ft.-6-in.; 3,841 ft. of 9-ft.; 2,339 ft. of 9-ft.-3-in.; 15,596 ft. of 10-ft. and 8,095 ft. of 7-ft.-6-in. to 10-ft.; cost \$750,000.....	J. P. Vroman, Secy. Bd. Pub. Wks.
Illinois.....	Rock Island.....	Nov. 17.....	Erecting filtration plant at arsenal.....	Command. Officer, Rock Island Arsen
New Jersey.....	Ft. Hancock.....	Nov. 17, noon.....	Piping deep well for air-lift.....	Quartermaster.
Tennessee.....	Trenton.....	Nov. 17, 4 p.m.....	Constructing water works consisting of 150,000 gal. reservoir, deep well pump, 850 ft. water mains.....	Mayor.
Texas.....	Temple.....	Nov. 18, 4 p.m.....	Furnishing duplex triple expansion condensing pumping engine of 3,000,000-gallon capacity.....	Water Commissioners.
Massachusetts.....	Lowell.....	Nov. 18, 10 a.m.....	Furnishing 900 ft. cast iron water pipe.....	E. F. Foye, Supply Department.
Oklahoma.....	Pryor Creek.....	Nov. 20, 5 p.m.....	Furnishing 33,000 linear ft. 10-in. cast iron water pipe.....	Joe Hillin, City Clerk.
Illinois.....	Springfield.....	Nov. 20.....	Erecting a 2-story Municipal pumping station building 125x149 ft. including a pump pit 50x90 ft. and 20 ft. deep.....	Mayor.
Brit. Col., Can.....	Vancouver.....	Nov. 20.....	Furnishing 1,900 tons cast iron water pipe and appurtenances.....	W. McQueen, City Clerk.
Arkansas.....	Russellville.....	Nov. 20, 2 p.m.....	Constructing water works; 2,200 ft. 10-in. wood stave pipe 19,000 ft. 4 to 10-in. cast iron pipe, 500,000 gal. turbine pump, motor, etc.....	Russellville Water & Light Co.
Tennessee.....	Obion.....	Nov. 21, 2 p.m.....	Constructing water works.....	S. J. Harris, Recorder.
Kansas.....	Pratt.....	Nov. 21, 2 p.m.....	Constr. concrete dam, water supply conduit 6,875 ft. long; about 15,000 ft. clay pipe.....	Fish and Game Warden.
California.....	Exeter.....	Nov. 22.....	Constructing water works.....	City Clerk.
Minnesota.....	Minneapolis.....	Nov. 24, 7:30 p.m.....	Furnishing boiler for filtration plant.....	H. N. Knott, City Clerk.
Missouri.....	Pacific.....	Nov. 27, 7:30 p.m.....	Constructing water works.....	City Clerk.
India.....	Howrah.....	Dec. 1, 4 p.m.....	Furn. 2 triple expansion engines coupled to centrifugal pumps, capacity 8,000 gals. per minute.....	C. F. Payne, Chm. Municipal Comrs.
Washington.....	Elma.....	Dec. 5, 3 p.m.....	Constructing water works and pumping plant.....	C. M. Long, Town Clerk.
Pennsylvania.....	Erie.....	Dec. 6, noon.....	Furnishing 20,000,000 gallon pumping engine.....	Water Works Commission.
Manitoba, Can.....	Neepawa.....	Dec. 15.....	Constructing water works.....	J. W. Bradley, Secy. and Treas.
Australia.....	Queensl'd, Brisb.....	Jan. 30, noon.....	Furnishing a 6 million gallon pumping plant of 2 or 3 units.....	G. E. Johnston, Secy. Board, Albert St., Brisbane, Queensland.
BRIDGES				
California.....	Los Angeles.....	Nov. 17, 2 p.m.....	Constructing trestle bridge.....	Board Public Works.
Ohio.....	Cincinnati.....	Nov. 17, noon.....	Repairing bridges.....	Director Public Service.
Michigan.....	Saginaw.....	Nov. 17.....	Constructing substructure of bridge.....	Board Public Works.
Pennsylvania.....	Middletown.....	Nov. 18.....	Constructing steel and concrete bridge.....	County Commissioner.
Texas.....	Houston.....	Nov. 20, noon.....	Constr. 2 reinforced concrete bridges over White Oak Bayou.....	Dan C. Smith, Jr., City Compt.
Ohio.....	Cincinnati.....	Nov. 24, noon.....	Constructing culvert.....	County Commissioners.
Ohio.....	Toledo.....	Nov. 25, noon.....	Constructing bascule bridge at Cherry Street.....	J. P. Colwell, Dir. Pub. Service.
New Hampshire.....	Portsmouth.....	Nov. 25.....	Constructing combined RR. and highway bridge, cost \$80,000.....	B. of Yds. & D., N. Dept., Wash
Ohio.....	Cleveland.....	Nov. 29, 11 a.m.....	Constructing bridge work.....	J. F. Goldenbogen, County Clerk.
Oregon.....	Portland.....	Dec. 1.....	Building superstructure of bridge.....	Mayor.
Ohio.....	Cleveland.....	Dec. 2, 11 a.m.....	Constructing bridge work.....	County Commissioner.
Maryland.....	Indianhead.....	Dec. 2, 11 a.m.....	Constructing tide bridge and rebuilding wharf.....	Navy Department.
North Carolina.....	Castle Hayne.....	Dec. 6, noon.....	Constructing highway bridge.....	D. McFachern, Chm. Bd. Co. Com.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO.
LIGHTING AND POWER				
Massachusetts...	New Bedford...	Nov. 17, 4 p.m.	Wiring municipal building.	F. W. Francis, Chairman.
Tennessee...	Trenton...	Nov. 17, 4 p.m.	Constructing lighting plant consisting of automatic engine, 100 K.V.A. generator, poles, wires, etc.	Mayor.
Ontario, Can...	Renfrew...	Nov. 17...	Constructing storage dam for hydroelectric plant.	J. R. Stewart, Town Engineer.
Ohio...	Columbus...	Nov. 20...	Making additions and alterations to the municipal light plant.	H. S. Holton, Dir. Pub. Service.
Pennsylvania...	Philadelphia...	Nov. 20, noon...	Constructing pier and bulkhead.	Director Dept. Wharves.
Ohio...	Fremont...	Nov. 21...	Lighting city for 10 years.	Board Public Service.
Alberta, Can...	Lethbridge...	Nov. 24...	Furnishing equipment for power station consisting of boilers, turbo-generator set and sub-station equipment.	G. W. Robinson, Secy.-Treas.
Tennessee...	Memphis...	Nov. 24, noon...	Furnishing locomotive train.	Clark S. Smith, Maj. Engineers.
Illinois...	Geneva...	Nov. 24...	Furnishing engine generator, switch-board, etc.	A. L. Stimple, City Clerk.
New York...	Saratoga Springs...	Nov. 30, 7:30 p.m.	Lighting streets of city with gas or electricity for period of 4 years: there are 154 arc lamps, 180 incandescents and 226 gas lamps in use.	Clarence Bird, Clerk.
Louisiana...	New Orleans...	Dec. 7, 3 p.m.	Furnishing 6,000 KW Turbo-generator, 150 KW. converter and 7 panel switch-board.	F. S. Shields, Secretary.
Dist. Columbia...	Washington...	Dec. 18...	Gas franchise for city of Manila for 50 years.	B. of I. A., War Dept., Wash., D.C.
Australia...	Brisbane...	Jan. 30, noon...	Designs, supply and erection at Mount Crosby Pumping Station of alternatively one, two and three complete units consisting of power generating pumps and plants, etc.	Geo. Johnston, Albert St., S.&W.Bd
MISCELLANEOUS				
Illinois...	Centralia...	Nov. 17, 7:30 p.m.	Furnishing and erecting 1,000 ft. iron fence.	Committee on Buildings.
Massachusetts...	New Bedford...	Nov. 17, 4 p.m.	Furnishing fencing for playground.	F. W. Francis, Chairman Comm.
Ohio...	Cleveland...	Nov. 20, noon...	Furnishing and installing metal lockers for fire station.	F. G. Hogen, Dir. Pub. Service.
Pennsylvania...	Philadelphia...	Nov. 20...	Constructing pier at Dock St. Cost \$250,000.	Director Hasskarl.
Dist. Columbia...	Washington...	Nov. 21, 2 p.m.	Furnishing auto combination chemical and hose wagon.	Dist. Comm.
Indiana...	Fort Wayne...	Nov. 21, 8 p.m.	Furnishing materials for extending fire alarm system.	Board of Pub. Safety.
Virginia...	Richmond...	Nov. 29...	Building City wharf.	City Council.
Sask. Can...	Moose Jaw...	Dec. 4, 8:30 p.m.	Furnishing motor pumping engine, motor propelled steam pumping engine or horse drawn steam pumping engine.	W. F. Heal, City Clerk.
Massachusetts...	Boston...	Dec. 5...	Proposal for disposal of refuse for 10 years.	L. K. Rourke, Comr. Pub. Wks

STREET IMPROVEMENTS

Alameda, Cal.—Street Committee of City Council is investigating project to widen Encinal ave., east of Regent st. Committee is having plans of proposed improvement prepared by City Engineer I. N. Chapman.

Grass Valley, Cal.—At joint meeting of Good Roads Club and Representative Committee of City Council it was decided to rebuild every road in city. An experiment in road building was tried by Good Roads Club on one of streets by first laying coat of coarse rock and then covering it with fine macadam. Experiment was so successful that every street in city will be built in this manner.

Crescent City, Cal.—Steps are being taken for bringing good roads issue before people at earliest possible date.

San Francisco, Cal.—Finance Committee has allowed \$10,000 for cement coping and artificial stone sidewalks around Holly Park.

San Francisco, Cal.—Fire Commission has requested Supervisors to disregard protest which some property owners have filed against ordering Congress st. paved between Masonic and Buena Vista aves. This is only street which Engine Company No. 40 can use for responding to alarms in neighborhood of St. Joseph's Hospital.

Hartford, Conn.—Board of Street Commissioners are considering plans for covering of Gully Brook; estimated cost, \$100,000.

Washington, D. C.—Engineering Department has ordered surfacing of 13th st. with old material and laying of sidewalk on north and west sides of reservation located on Park rd.

Bronson, Fla.—Voters will decide at election whether or not they desire to have subroad district.

Jacksonville, Fla.—All bids were rejected for paving of Maypole rd. and Lincoln ave.

Atlanta, Ga.—DeKalb County Good Roads Association will hold meeting at Decatur for purpose of discussing matter of proposed issue of \$550,000 bonds for improvement of roads in county.

Atlanta, Ga.—Election will be held Dec. 7 for voting on \$550,000 bond issue for construction of better roads.

Moline, Ill.—Board of Local Improvements has authorized paving on 7th and 8th aves., from 15th to 17th sts., at cost of \$8,154.

Evansville, Ind.—Improvement of Louisiana st., from Main st. to 1st ave., and Tennessee st., from Main st. to Fulton ave., has been authorized.

Hartford City, Ind.—Board of County Commissioners and members of City Council have decided to improve North Wabash ave. with crushed stone.

Indianapolis, Ind.—Resolutions have been adopted for improving of Kealing st., from New York to Michigan st., and Ruckle st., from 30th to 33d st.

Council Bluffs, Ia.—Sample roads, surfaced with combination of sand and clay and another combination of cinders and clay, are to be constructed on Canning rd., with idea of testing them out and seeing just what road will meet in most satisfac-

tory manner requirements of local demands.

Topeka, Kan.—Petition has been received asking for grading, paving and curbing of Haynes st., from Willow ave. to 6th ave.

Topeka, Kan.—Paving of Norris st., from No. Jackson to No. Quincy st., is being considered.

Louisville, Ky.—Bids will shortly be opened by Board of Public Works for construction of alley with vitrified brick, between 1st and 2d sts., and Avery and Brandeis sts.; cost, \$1,000.

Louisville, Ky.—Board of Public Works has received bids for construction of streets of vitrified blocks from L. R. Figg & Co., G. W. Gosnell, Henry Bickel Co., L. W. Hancock Co. and F. G. Buslin. Work contemplated by bids covers construction of Market st., between 26th and 28th; Shelby st., from Camp to Oak, and Brook st., from Walnut to Chestnut. Lowest bid was \$1.49 and highest was \$1.88 sq. yd.

Louisville, Ky.—Ordinances have been passed providing for improvement of various streets of city.

New Orleans, La.—Ordinance has been referred to City Engineer for paving of following streets with bitulithic: Valence, from Constance to Louisiana ave.; Laurel, from Louisiana ave. to Audubon Park, and Constance, from Louisiana ave. to Valmont.

New Orleans, La.—Petition has been received asking Council to provide either a shell or gravel roadway along river front from Naval Station to parish line in Fifth District; also another petition asking that Barrett st. be opened from Robert to Upperline in Sixth District.

Boston, Mass.—Council has passed order appropriating \$75,000 for widening of Union Park st.

Boston, Mass.—Order has been received from Mayor appropriating by loan \$520,000 for extending Arlington st. from Boyston st. to Providence st. and for widening of Ferdinand st.

Lynn, Mass.—City has negotiated loan of \$194,800 with E. E. Elder, of Peabody, part of the money to be used for following purposes: \$50,000 street improvements, and sidewalk improvements, \$3,000; Commercial st. extension, \$6,500.

New Bedford, Mass.—City Council Committee on Finance has voted to accept bid of R. L. Day for \$10,000 highway bonds.

Grosse Pointe Shores, Mich.—Question of repairing pavement on Jefferson ave. in village of Grosse Pointe Shores was brought up at Council and approved. Work will be commenced at once in order that street will be in condition through winter.

Hancock, Mich.—Bids will be asked for in February, 1912, by Board of County Road Commissioners on following sections of road: 1st—Hancock-Calumet rd., beginning at Rhode Island and extending to the Highway Cut Off, 7,500 ft. of macadam. 2nd—Ontonagon rd., beginning at West Houghton and extending to Atlantic, 14,200 ft. of macadam. 3rd—Baraga rd., beginning at the Snake River and extending to Barago County line, 4 1/2 miles of earth road. Contractors wishing to bid on this work should look over roads before snow falls.—H. Martin, Highway Engineer.

Pontiac, Mich.—Pontiac has been formally asked to lend its support to project of stone road between Pontiac and Saginaw by way of Flint, and ultimate plan is for continuous good road from Detroit, running through Pontiac and Flint, to Saginaw.

Winona, Minn.—State Highway Commission and county officials will make effort to get in touch with prospective bidders for construction of 3 State rural highways to be constructed under Elwell law in Winona County within next few weeks.

Brandon, Miss.—All bids have been rejected for improving about 65 miles of public roads, and new ones asked for up to Dec. 4; estimated cost, \$25,500.—J. A. Hammock, Engineer in charge.

Vicksburg, Miss.—Election will be held Jan. 23 for voting on \$100,000 bond issue for improvements to city streets.

St. Louis, Mo.—Board of Public Improvements has recommended wood block pavement on Washington ave.; also following bills were introduced: Reconstruct St., Charles st., from 4th to 7th, wood blocks, \$7,489; to improve Blow st., between Grand ave. and Field ave., telford, \$9,035; improve Russell pl., between Parker ave. and Hartford st., telford, \$15,506; reconstruct Washington ave., from 12th to 18th, wood blocks, \$24,051; reconstruct 7th st., from Bway, to Park ave., brick, \$63,655; improve Utah st., between Gustine ave. and Russell pl., telford, \$5,563; improve French ave., between Grand ave. and Eugene ave., telford, \$3,519; reconstruct Mallinckrodt st., from Bway, to 11th, brick, \$5,041; reconstruct Mound st., from 2d st. to Broadway, brick, \$4,040; improve French ave., between Eugene ave. and Field ave., telford, \$3,108. Roadway and Sidewalks—Blow st., between Grand and Field; French ave., between Grand and Field; Grace ave., Gravois to Fairview; Hornsby ave., Bway, to Newby; North Market st., Bway, to 15th; Russell pl., Tholozan to Hartford; Utah, between Gustine and Morgan Ford.

St. Joseph, Mo.—Ordinances have been passed providing for improving of Penn st. and 22d st. by grading, etc.

St. Joseph, Mo.—Ordinances are being considered for paving of various streets of city.

Omaha, Neb.—Resolution has been adopted for opening of Pierce st., from 17th to 18th sts., and for paving of 18th st., from Pierce to Leavenworth; 17th st., from Williams to Mason; Marcy st., from 17th to 14th st.

Elizabeth, N. J.—Ordinance has been passed for block paving on Cross st., from Poet st. to Smith st.

Newton, N. J.—Petition is being considered for improving of several roads in Sussex Borough and county seat to cost about \$100,000.

Newton, N. J.—Effort is being made by persons in Sussex Borough and county seat to secure improving of several roads in this county at estimated cost of \$100,000.

Perth Amboy, N. J.—Petition has been received asking Council to open and extend Inslee st.

Perth Amboy, N. J.—Kountze Bros., of New York, were highest bidders for \$107,000

worth of street improvement and school bonds, and will most likely be awarded same.

Roselle Park, N. J.—Resolutions have been approved of by Borough Council for macadamizing Union rd. at cost of \$2,415.42, and portion of Grant ave., at cost of \$773.51.

Vineland, N. J.—State Road Inspector has approved proposition to construct State rd. from Landis ave., Vineland, to McNeal st., Millville.

Whippany, N. J.—Roads laid out in Hanover Township in carrying out Theodore N. Vail's plan for memorial park surrounding Parsippany Presbyterian Church and cemetery, have been formally accepted by Township Committee.

Canajoharie, N. Y.—Bonds of Village of par value of \$10,000, to provide portion of means for paying cost of paving and curbing Church st., have been sold by Board of Trustees to Canajoharie National Bank at 4.62½ per cent. and premium of \$10 on entire issue.

Rochester, N. Y.—Bids will shortly be opened for various street improvements.

Saranac Lake, N. Y.—Bids will be received for construction of highway between Saranac Lake and Bloomingdale Village, about 1.44 miles; also for construction of following highways: North Hudson-Euba Mills, Part 2; New Russia-Elizabethtown, Minerva-Alden Lair, Alden Lair-Newcomb, Part 2; Schroon Lake, North Hudson, Part 2.

Brookville, O.—Bids will be received until 12 noon, Nov. 13, at office of Clerk of Village, for purchase of \$18,000 bonds for improvement of Market st. H. E. Wheaton, Clerk.

Cincinnati, O.—Resolution has been passed for improving Terrace ave., from Ormond ave. to Clinton ave.

Cincinnati, O.—Petition has been received asking for extension of Isabella st., either by construction of a fill or viaduct to Madison rd., also for widening of Charlotte st., from Baymiller st. to Piut alley.

Springfield, O.—Petition has been received asking for elimination of North Main st. grade crossing.

Youngstown, O.—Petitions have been received asking for paving of New York ave. and Woodward st.

Youngstown, O.—Council has ordered ordinance drawn for bond issue for improvement work in Pyatt st., from Market to Erie st.

Oklahoma City, Okla.—Election will be held Nov. 25 for voting on \$1,250,000 bond issue for construction of 155 miles of road.

Altoona, Pa.—Resurfacing and street paving operations will be considered by Board of Public Works.

Danville, Pa.—Ordinances have been passed authorizing grading and paving part of E. Market st. and E. Front st. with vitrified paving brick.

Erie, Pa.—Resolution has been adopted for establishing of grades at Perry st. and for grading and curbing of Chestnut st., from 29th st. to southern city limits.

Harrisburg, Pa.—Plans for work on river road north of city are nearly ready, and advertisements for work are being prepared.

Harrisburg, Pa.—Following ordinances have been passed for paving and curbing Holly st., from 17th to 18th st.; Front st., from MacLay to Division; Elm st., from 16th to Juniper; Apricot st., from Juniper st. westward 115 3/10 ft. to eastern side of 10-ft. wide alley; vacation of certain streets and highways for purpose of making extension to present Capitol Park.

Scranton, Pa.—Ordinance has been passed providing for relocating, opening, widening and grading of Love rd.

Fall River, R. I.—Committee on Finance will recommend to Board of Aldermen that order be adopted authorizing City Treasurer to negotiate loan of \$15,000 to be appropriated to use of highway department.

Manville, R. I.—Petition has been received asking for improvements on Elm st., and also that lights be placed on that street.

Chattanooga, Tenn.—Ordinance has been introduced and passed on one reading appropriating \$5,200 for purpose of paying for widening Rossville ave.

Loudon, Tenn.—County Court has authorized issuance of \$100,000 bonds for building and improving road system in county.

Dallas, Tex.—Extensive street improvements and openings have been recommended.

Denison, Tex.—City will advertise for bids for macadamizing street intersections.

Houston, Tex.—Council has decided to build additional granolithic walks, extending present pavements on Maple ave., and on main street of village.

Terrell, Tex.—Resolution has been prepared for paving of Moore ave., the principal thoroughfare, and streets running into that avenue for specified distance. These resolutions will be placed before City Commission. The territory to be paved will be known as Improvement District No. 1.

Norfolk, Va.—Finance Committee of City Councils has recommended appropriation of \$43,000 for improving Church st. with wood block pavement from Main st. to Queen, belgian block with oak key from Queen to Goff st.

Portsmouth, Va.—Street Committee of Council will take up right away spending of balance of bonding issue for paving of city streets. This balance amounts to about \$60,000, of which sum it will take approximately \$30,000 for High st., provided that street is improved. Sixth ward has already pledged \$20,000 for work of improving High st., and if work is undertaken entire work will cost in neighborhood of \$50,000.

Portsmouth, Va.—Proposed extension of Cooke st., from High st. southwardly to Columbia st., is being discussed.

Portsmouth, Va.—Construction of highways extending south from present end of Deep Creek boulevard through Camden county and South Mills to Elizabeth City, N. C., is being considered.

Richmond, Va.—Council has ordered 5th st., from Franklin to Main st., to be paved with bituminous macadam, to cost \$1,288.

Spokane, Wash.—City Commissioners will re-advertise for bids for paving Ash st. with new pavement, known as "Spokane pavement."

Wheeling, W. Va.—In Belmont County election proposition for improvements of Bellaire and Bridgeport pike, 1.8 miles in length, was voted for; estimated cost, \$20,000.

Green Bay, Wis.—Resolution to pave Howard st., from Bway. to Oak st., is being considered.

Milwaukee, Wis.—Common Council will be urged to authorize Public Works Department to pave within street car zone on several streets of city.

CONTRACTS AWARDED

Bakersfield, Cal.—To Fairchild-Gilmore Wilton Co., Los Angeles, the following contracts for street improvements: Portion of 19th st., at \$22,144; portions of Park and Grove aves., at \$17,423; portions of streets in Kern Dist. No. 1, at \$17,425; L st., at \$9,052; Work consists of grading and paving, curbs and gutters, 12-in. and 18-in. culverts and sidewalk approaches; to the Federal Construction Co. following contracts: Portions of F st., at \$11,516; 19th st., at \$31,157; Chester st., at \$12,320. The work consists of grading and paving, curbs and gutters, 12-in. and 18-in. culverts and sidewalk approaches; to Cotton Bros., 343 5th st., San Francisco, at \$21,327, for improving portions of N. Baker st.

Ontario, Cal.—To Beesley & Castle, for constructing sidewalks on Fern, Palm, Euclid, Plum and Cherry aves., at 11c. per sq. ft., and for granite curbs on Main, State, Park, Grove, Nevada and Oakland sts., at 20c. per lin. ft.

Santa Clara, Cal.—By Board of Town Trustees for paving of Franklin st. to Ransome-Crummey Co. at 45 cents per sq. ft.

Jacksonville, Fla.—By Board of County Commissioners as follows: To J. J. Whitaker, for clearing, grubbing and grading on Chaseville rd., from Atlantic boulevard to Chaseville, at \$35 an acre for clearing and grubbing, and 17 cents per cu. yd. for grading; Daniel, Lyst & Douglas, for paving 27,000 sq. yd. on St. Johns ave. and Lake Shore drive, from the city limits to McGirt's creek, at \$1.07 per sq. yd., and Harley Hogan, for clearing, grubbing and grading on the Pensacola rd., from the terminus of the present contract to Marietta, at \$34 an acre for clearing and grubbing approximately 7 acres of land, and 18½ cents per cu. yd. for grading, approximately 10,800 cu. yd.

Hillsboro, Ill.—For street improvements as follows: Brick pavement on Tremont st., to C. S. Edwards, Litchfield, Ill., \$9,922; sidewalk in combination with retaining wall on Seward st., to J. P. Goggin, Arcola, Ill.

Rantoul, Ill.—To H. C. Finley, of Hoopes-ton, for paving Sangamon ave., for about \$24,000.

Rockford, Ill.—By Board of Local Improvements, for paving to A. E. Rutledge, at \$55,191.

Vincennes, Ind.—By County Commissioners, for construction of gravel road, to H. F. Jones, at \$7,890.

Clinton, Ia.—By city, for completing construction of permanent sidewalks, to Thos. Carey & Son.

Hutchinson, Kan.—By City Commissioners, for building curbing on West E. st., to McLeod & Crandall, at 28½c. per lin. ft.

Hutchinson, Kan.—By City Commissioners, for construction of concrete base on right of way of street intersections from 5th st. to D, to J. H. Shears & Sons, at \$1.20 per sq. yd.

New Orleans, La.—By Board of State Engineers, to A. K. Amacka, East Carroll, at \$24,925, for construction of road from Arkansas state line to line of Madison parish.

St. Paul, Minn.—By Board of Public Works, for grading Morton st., to Thornton Bros., at \$1,487; for grading Territorial rd., to P. J. Ryan, at \$1,473; grading Bayard ave., to Christ Johnson, at \$813.20; grading alley in Block No. 3, Ramsey's addition, to Keough Bros., at \$282.

Flemington, N. J.—For constructing macadam road between Clinton and Hampton, to M. I. Demarest, Sewaren, N. J., at \$57,252.

Newark, N. J.—For paving Lindsley rd., to Francisco Bros., with telford and stone foundation, at 74c. per sq. yd., total \$21,500, and for paving Clinton ave., to R. C. McMains, at 80c. per sq. yd., total \$13,580.—Amos B. Pierce, Clerk.

Perth Amboy, N. J.—By City, for grading Laurie st., to Martin Hanson, at 40c. per cu. yd. Other bids as follows: Graham & McKeon, 44c. per cu. yd.; Liddle & Pfeiffer, 50c. per cu. yd.; for grading Stockton and Fayette sts., to Graham & McKeon, at 44c. per cu. yd.

Albany, N. Y.—By Board of Contract and Supply, for improvement of Buchanan st., from Manning boulv. to Lincoln ave., to Benjamin F. Mulderry, at \$4,051.13.

Cadiz, O.—For grading and macadamizing 1.31 miles of Cadiz-Jewell rd. in Archer Township, to J. P. Warnick, Cadiz, \$9,869.

Cincinnati, O.—By County Commissioners, for improving Wooster Pike, to Keller & Schuermann, for \$12,327.

Mount Vernon, O.—For improving road in Knox County, to O. L. Ashcroft, Mount Vernon, at \$8,218.

McKeesport, Pa.—By City Council, for improvement of 6th ave., near Union ave., Lincoln st. and Bard st., to D. B. Hough.

Monongahela, Pa.—For 6,000 sq. yds. of brick paving, 7,200 lin. ft. of curbing and 3,000 cu. yds. of grading, to M. Erbeck, Homestead, Pa.

Pittsburgh, Pa.—For street improvement as follows: Booth & Flynn, Corday alley, \$3,742; Wilkins st., \$18,820; Charles st., \$3,716; J. B. Sheets Co., Haight's alley, \$2,047; Thomas Cronin Co., Herman st., \$6,605; M. O'Herron Co., Thomas st., \$8,158.

Wilkes-Barre, Pa.—For paving Division st., to Herrick Constr. Co., for \$7,300.

Whiteville, Tenn.—By city, for construction of concrete sidewalks over main streets, to R. H. Pentecost.

Huntington, W. Va.—By Commissioners, for paving 19th st., to Freshwater & Sons, and for paving Railroad ave., to John Steuder.

BIDS RECEIVED

Jacksonville, Fla.—For road work as follows: For paving St. Johns ave. and Lake Shore Drive, from city limits to McGirt's Creek, 6,000 ft., with asphalt macadam: George R. Foster, \$1.23 per sq. yd.; Logan Concrete & Engineering Co., \$1.19½; L. F. Drysdale, \$1.07; F. W. Long & Co., \$1.34; T. J. McGuire, \$1.35 per sq. yd. Clearing right-of-way of the Chaseville rd.; Cobb & Little, \$45 per acre; J. Y. Whitaker, \$35, and the Springfield Contracting Co., \$60 per acre. For sawdusting county's part of the St. Augustine rd., Harley Hogan, 77c. cu. yd.; L. F. Drysdale, 68c., and C. F. Wing, 42c. Bids for paving Mayport rd.: Daniels, Lyst & Douglas, rock \$1.44, 77 crete \$1.07 and chert \$1.24 per sq. yd.; Mattair & Young, \$1.2 rock, and the Logan Concrete & Engineering Co., \$1.44½. For clearing and grading Pensacola rd., from point 3 miles west of present hard-surfaced road to and through Marietta: H. Hogan, \$34 per acre, or 18½c. per cu. yd.; M. S. Pickett, \$80 per acre, or 24½c. per yd.; Sam Spencer, \$40 per acre, or 20c. per yd.; J. W. Whitaker, \$39 per acre, or 18½c. per yd., and H. Lowe, \$42 per acre, or 19c. per yd. For furnishing oyster shell at various places: Victor O'Brien, \$1 to \$1.15 per cu. yd.; Arnold & Bonnell, \$1.05 to \$1.20; L. F. Drysdale, 89c. to \$1.10, and J. P. Haney, 80c. to \$1.05.

Lake Charles, La.—For construction of (a) 18,000 lin. ft. concrete curb and (b) 90,000 sq. ft. concrete sidewalk as follows: Delatte & Lagrange, Lake Charles, La., (a) 24c., (b) 12½c.; W. M. Leftwich Co., Nashville, Tenn., (a) 26c., (b) 12½c.; Southern Asphalt & Con. Co., Birmingham, Ala., (a) 34½c., (b) 13c.; J. S. Allen, Greenville, Miss., (a) 29c., (b) 12½c.; Kelly, Jones & Allen, Opelousas, La., (a) 34c., (b) 12½c.; W. B. Milne, Eddyville, Ky., (a) 28c., (b) 13½c.—T. H. Mandell, C. E.

Flemington, N. J.—For construction of macadam road between Clinton and Hampton, as follows: Russell Klockner, Trenton, Class A oil, \$61,445; Class B oil, \$64,943; Miles Tighe Co., Easton, A, \$61,882; B, \$63,781; Bushkill Quarry & Construction Co., Easton, A, \$59,475; M. L. Demarest, Sewaren, A, \$55,065; B, \$57,252; Salmon Construction Co., Netcong, A, \$53,661; B, \$57,034.

New York, N. Y.—For regulating, grading, setting curb, flagging sidewalks, laying crosswalks, building approaches, drains, retaining walls, etc., and placing fences where necessary in Plympton ave., from Boscobel ave. to Featherbed lane, and lowest bid was that of Handy Bros. Contr. Co., 2342 Morris ave., as follows: 1,700 cu. yds. excav., 60c.; 51,200 cu. yds. fill, 7c.; 2,860 lin. ft. new curb, 68c.; 11,000 sq. ft. new bluestone flag, 28c.; 400 sq. ft. new bridge stone, 65c.; 100 cu. yds. dry-rubble masonry, \$2; 100 lin. ft. vitr. pipe, 12 in., 70c.; 8 M ft. timber and lumber, \$40; 2,720 lin. ft. of guard rails, 15c.; total, \$10,557. Other bidders: Marble Arch Co., \$17,810, and P. J. Kane Construction Co., \$10,706.

Lowest bid for paving with bituminous pavement on concrete foundation Grand ave., from Tremont ave. to Burnside ave., and adjusting curb, was that of Barber Asphalt Paving Co., at \$4,119.

Syracuse, N. Y.—For paving Lodi st., from James st. to Green st., as follows: Warner-Quinlan Asphalt Co., Cowan brick, \$7,513.40; Trinidad asphalt, \$7,167.65; Central City Paving Co., Mack block, \$7,639.95; Trinidad asphalt, \$7,363.35; F. J. Baker, Johnsonburg block, \$7,385.65; Trinidad asphalt, \$7,155.15; for grading Helen st., from Manlius to Elsner st., S. Bonn, \$2,496; B. Gaffey, \$2,623; H. C. Lewis, \$2,135.50; P. Thomas, \$3,308; A. Sposato, \$2,965.50.

Canton, O.—For paving (a) Cedar st. and (b) Belden ave.: Logan D. Burd, (a) \$17,204, (b) \$18,785; Turnbull & Son, (a) \$18,731, (b) \$17,884; Wise & Krabill, (a) \$17,520; F. A. Downs, (a) \$16,590, (b) \$18,432; P. Hahn & Son, (b) \$18,607; J. B. Smith, (a) \$17,063, (b) \$18,607.

Canton, Ohio.—For street improvements, as follows: Paving Cedar St.: Logan D. Burd, \$17,204; Turnbull & Son, \$18,731; Wise & Krabill, \$17,520; F. A. Downs, \$16,590; P. Hahn & Son, \$17,205; J. B. Smith, \$17,063. Improving Moyer ave.: P. Hahn & Son, \$3,832; L. D. Burd, \$4,377; F. A. Downs, \$3,733. Paving Belden ave.: Turnbull & Son, \$17,884; Press Campbell, \$17,879; F. A. Downs, \$18,432; L. D. Burd, \$18,785; P. Hahn & Son, \$18,607.

Harrisburg, Pa.—For reconstructing 6,528 lin. ft. road, 16 ft. wide, known as the Moreland rd., Moreland Township, Montgomery County, as follows: Filbert Paving & Construction Co., 903 Pennsylvania Bldg., Philadelphia (3 bids), \$21,255, 2½ in. thick bituminous macadam; \$22,415, 3 in. bituminous macadam; \$22,415, 5 in. concrete base, 2 in. Filbertine top. Ambler-Davis Co., 1016 Harrison Bldg.,

Philadelphia (3 bids), on Bermudez asphalt, \$27,202, \$27,782, \$26,622; Borneman Beidler Construction Co., 1317 Land Title Bldg., Philadelphia, Pa., \$27,263, 2½ in. bituminous macadam; J. F. Shanley Co., 400 Arcade Bldg., Philadelphia, Pa., \$29,292.95, Howellville limestone, asphaltic concrete; Monroe Paving Co., 1015 Stephen Girard Bldg., Philadelphia, Pa., \$24,762.21, limestone, Bermudez asphaltic cement; Hoff & Horn, Slatington, Pa., \$27,425.89, Dyer or Rockhill trap, Bermudez road asphalt; Wm. C. Evans, Ambler, Pa. (7 bids on Howellville stone), \$23,769 to \$26,670; Thos. Meehan & Sons, Mt. Airy, Philadelphia (2 bids), \$29,496 (asphalt) and \$26,697 Hassam paving; Chas. T. Eastburn, Yardley, Pa., \$26,615, trap rock and asphaltic concrete.

Salt Lake City, Utah.—For sidewalk extension No. 133: J. W. Mellen, \$44,036; Zerbe, Walker & West, \$46,851; Gillis Contracting Co., \$47,691; C. H. Eldred & Co., \$48,787; Consolidated Construction Co., \$51,628, and McKay & Reed, \$52,429. For paving extension 73: (a) bituminous concrete and stone, (b) bituminous concrete and brick, (c) Warren Bros. bitulithic and stone, (d) Warren Bros. bitulithic and brick: P. J. Moran, (a) \$34,943, (b) \$34,616, (c) \$39,151, (d) \$38,825; Strange-Maguire, (c) \$41,272, (d) \$39,736; Warren Construction Co., (c) \$46,058, (d) \$44,521.

Seattle, Wash.—For concrete walks on Latona ave., as follows: Begley & Co., \$4,914.38; DeFlong & Helthous, \$3,155.24; Geo. Hansen, \$3,141.78; Krogh & Jensen, \$3,119.74; W. H. Smith, \$2,933.52; J. A. Zinkan, \$3,549.30; and for planing and bridging Highland Drive: J. A. McEachern Co., \$1,851.58; H. D. Stewart, \$1,936.70; Rounds-Hurston Co., \$2,317.61; C. F. Graff, \$2,094.50; J. L. Stanley, \$1,717.40; C. Geske & Co., \$1,849.90; J. G. Engstrom, \$1,618.57; Washington Engineering Co., \$1,848.72; Hansen & Co., \$2,037.40; Haydon & Sour, \$2,173.25; R. S. Fox, \$2,248.60.

SEWERAGE

Chico, Cal.—Special election in Chico suburb south of Little Chico Creek resulted in defeat of proposition to install sewer system in that district.

Williams, Cal.—Whether to incorporate Williams as city and vote bonds for construction of sewer system, or to organize sanitary district under provisions of new State law, is question that is being discussed by citizens.

Bridgeport, Conn.—Aldermanic Committee on Sewers has voted to recommend to

Common Council construction of two large trunk sewers, one in East End and other in Brooklawn district, at approximate cost of \$80,000.

Waterbury, Conn.—Petition has been received asking for installation of storm sewer to care for surface water from Highland, Workman, Riverside and Washington aves.; estimated cost \$10,000.

Washington, D. C.—In Bunker Hill rd., between Sergeant rd. and Otis st. north-west, 3000 ft. of service sewer mains are to be laid at cost of \$6,000. Sewer is also to be constructed in 2d st., between E st. and N. Carolina ave. and across 2d st. just north of E st. southeast; Lowell st., between 34th and 35th sts. northwest, southwest corner of 16th and E sts. southwest, southwest corner of 17th and E sts. and southwest corner of 18th and E sts north-west; Petworth valley outlet sewer, to extend from 14th and Varnum sts., through grounds of municipal hospital to 13th and Upshur and Varnum sts., and in Georgia ave., between Upshur and Taylor sts., will be constructed. Cost of this improvement will be \$24,000.

Tampa, Fla.—Installation of new sewage system is under consideration.

Moline, Ill.—Board of local improvements has approved of sewer and water main job for southeast bluff to cost about \$5,279.

Fort Wayne, Ind.—Construction in 10 years of new sewers, a dam, etc., aggregating about \$480,000 in cost, is recommended in report of Metcalf & Eddy, consulting engineers employed by River Front Commission.

Lexington, Ky.—Voters have decided in favor of \$150,000 bond issue to complete sewerage system.

Lynn, Mass.—City has negotiated loan of \$194,800 with E. E. Elder, of Peabody, part of money to be used for following purposes: Drainage construction, \$25,000 and \$5,000; Lakeside drainage, \$10,000.

Malden, Mass.—Sewer will be constructed in Malden st.

New Bedford, Mass.—City Council Committee on Roads, Bridges and Sewers will recommend to City Council construction of sewers in Ingraham and Kearsarge sts., at estimated cost of \$9,000.

Winchendon, Mass.—Selectmen have signed warrant for special town meeting Nov. 11 at 8 p. m. for proposal to instruct Sewer Commissioners to construct system of sewerage, following plans prepared by McClintock & Woodfall in 1906, subject to approval of State Board of Health, at expense not exceeding \$100,000, and to issue bonds of town.

MADISON, S. D.—FOR SEWAGE DISPOSAL WORKS ALL BIDS WERE REJECTED. BIDS AS FOLLOWS:

	Frazer & Danforth, Rochester, Minn.	G. S. Redmon, Pipestone, Minn.	E. T. Webster, St. Paul, Minn.	Younglove Construction Co., Sioux City, Ia.	F. H. Atkinson, Brookings, S. D.	Roberts & Few, Brookings, S. D.	Cook Construction Co., Des Moines, Ia.	Meeker & Dobson, Lincoln, Neb.	Engineers' Estimate.
Settling tank, complete.....	\$ 7,500.00	\$ 6,000.00	\$ 7,500.00	\$ 7,800.00	\$ 7,900.00	\$ 7,000.00	\$ 6,501.00	\$ 6,280.00	\$ 4,400.00
Contact beds, complete except filtering material.....	4,600.00	4,300.00	4,450.00	4,450.00	4,300.00	4,350.00	4,509.00	4,650.00	3,950.00
Filtering material for contact beds, approximately 600 cu. yds.:									
Gravel in place, per cu. yd....	.75	1.00	1.10	.98	1.50	1.10	1.01	1.00	1.00
Crushed limestone, in place, per cu. yd.*.....	4.75	4.00	4.75	5.00	4.80	4.90	4.09	4.55	.....
Excavation for filter beds, approximately 550 cu. yds., per cu. yd. ....	.80	.80	.80	.80	.57	.75	.85	.85	.35
Constructing earth walls without puddle core, per cu. yd. ....	.65	.60	.80	.50	.75	.60	.62	.45	.25
Constructing earth walls with puddle core, per cu. yd.*....	.80	.75	.80	.60	1.00	.85	.90	1.00	.....
Furnishing and placing filtering material, drainage and distributing pipes, complete to outside drain, 3 beds....	2,589.00	2,000.00	2,300.00	2,755.00	2,100.00	2,097.80	2,045.00	2,100.00	1,130.00
Outside drains, furnishing and laying complete:									
10" tile drain complete, per lin. ft.	1.20	1.20	1.25	1.25	1.22	1.21	1.20	1.23	.23
15" tile drain complete, per lin. ft.	1.45	1.35	1.40	1.45	1.35	1.42	1.50	1.40	.49
18" tile drain complete, per lin. ft.	1.80	1.60	1.80	1.75	1.60	1.65	2.00	1.70	.66
18" cast iron pipe drain, complete, approximately 60 ft., per lin. ft.	2.50	3.00	2.50	2.75	4.00	3.50	2.10	3.00	3.80
18" double strength pipe sewer, in place, complete, per lin. ft.	2.00	2.00	2.25	2.10	2.10	1.99	2.00	1.80	1.11
Manhole A, complete with cover.....	65.00	60.00	60.00	60.00	77.00	55.00	65.00	55.00	51.00
Manhole B, complete with cover.....	55.00	45.00	50.00	50.00	65.00	40.00	45.00	45.00	55.00
Cast iron pipe not exceeding 10 ft., siphon drain with 6" gate valve in place in Manhole B, complete.....	30.00	25.00	40.00	50.00	35.00	45.00	45.00	45.00	26.00
Manhole C, complete with cover.....	50.00	50.00	30.00	20.00	45.00	20.00	23.00	30.00	28.00
Total amount of bid.....	\$17,964.70	\$16,233.10	\$17,815.65	\$18,408.75	\$17,968.70	\$16,349.49	\$16,543.50	\$16,376.20	\$11,372.39

*Optional: Not included in total amount of bid.

Detroit, Mich.—City Engineer M. E. Brian, of Windsor, is preparing plans for new sewerage system in west end of city south of Elliott ave.

Saginaw, Mich.—Resolution is being considered for construction of sewer in Tuscola st. between 3rd ave. and 4th ave. and Tuscola st. between 7th and 9th sts.

Las Vegas, Nev.—Louis C. Kelsey, Selling Bldg., Portland, Ore., has been employed as consulting and supervising engineer for proposed sanitary sewerage system, for which bonds to amount of \$40,000 were voted on Oct. 10.

Caldwell, N. J.—Proposition to sewer entire borough and erect disposal plant by issuance of \$90,000 bonds has been voted for.

Camden, N. J.—Ordinance has been passed authorizing construction of sewers or drains in and along 19th st., from River ave. to Hayes ave., and 22d st., from River ave. to Hayes ave.

Elizabeth, N. J.—Ordinance has been passed authorizing construction of sewer in High st., from 5th ave. to point 360 ft. west.

Long Branch, N. J.—Proposition to install system of sewerage at Monmouth Beach is under consideration.

Sewaren, N. J.—City will install new kind of sewage disposal plant in connection with 1,000 ft. sewer to be laid in Woodbridge ave., from Woodbridge creek as far as West ave. Two-unit septic tank system has been designed whereby sewage will be held and purified in tank which will have outlet in Woodbridge creek.

Trenton, N. J.—Ordinance has been passed to authorize construction of Sewer 514, in Greenwood ave., from point near city line westerly to Garfield ave.

Albany, N. Y.—Bids will be advertised for construction of sewer in Ontario st.

Lestershire, N. Y.—Advisability of trunk line sewer through northern part of village is being discussed.

Lestershire, N. Y.—Petition has been received for construction of sewer on Cherry st.

Watertown, N. Y.—Resolutions will be adopted by Board of Public Works directing City Engineer to prepare plans for sanitary sewers in Highland ave. and Brett st.

Cincinnati, O.—Ordinances have been passed for following sewer improvements: West 6th ave. and Hillside ave., from Boldface creek sewer 3,585 ft. westwardly; Emming st., from Stratford ave. to Wheeler st.; Knox st., from right-of-way west of Blaine rd. to a point 600 ft. east of Blaine rd., and right-of-way from existing sewer 52.50 ft. south of Knox st. to Knox st.

Dayton, O.—City Council has passed ordinance authorizing issue of \$6,000 bonds for storm sewers on Forest ave.

Massillon, O.—Plans are being prepared for construction of sanitary sewer on South st. from McLain to Cecil st.

Altoona, Pa.—Plans for sewer system for eastern district are in progress.

Altoona, Pa.—Ordinances providing for sewers in 19th ave., between 12th and 13th sts., and 23rd ave., between 5th and 9th sts., have passed finally and have been adopted.

Harrisburg, Pa.—Ordinance has been passed providing for construction of 10-in. terra cotta pipe sewer in Boas st., from 17th st. to point 110 ft. east of 16th st.

Harrisburg, Pa.—Following ordinances have passed first reading: Construction of a terra cotta pipe sewer in Summit st. from Market st. to Mt. Pleasant alley in Mt. Pleasant alley from Summit st. to Honey st., and in Honey st. from Mt. Pleasant alley to a point 85 ft. north of Chestnut st.

Norristown, Pa.—Bids are required by Dec. 11 for constructing complete sewage disposal plant.—S. Cameron Corson, Borough Engineer.

Sharon, Pa.—Election is being considered for voting on \$25,000 bond issue for installing general sewerage system.

Susquehanna, Pa.—At meeting of Board of Trade plans were discussed for silk mill and sewage disposal plant. After consideration board arrived at conclusion that latter proposition is up to Borough Council and voters and will be settled at polls.

Mt. Pleasant, Tex.—Issue of \$16,000 sewer bonds have been approved of for registration.

Richmond, Va.—A. W. Maynard is lowest bidder for construction of big trunk sewer which will afford sewer outlet for Washington Ward, main trunk running down Maury st. through Everett and 1st sts., emptying into Walker's creek.

Spokane, Wash.—City Commissioners have rejected bid received when proposals were opened for constructing First Ward sub-trunk sewer No. 17. Bid was from DeCamp & Cheatham, who offered to do work for \$26,989.

Warwood, W. Va.—People are considering question of proposed bond issue of \$15,000 for repairing of sewers and construction of new ones.

CONTRACTS AWARDED

Princeton, Ill.—By Board of Local Improvement, for constructing sewers, to Hackworthy Construction Co., of Appleton, Wis., for \$20,305.

Quincy, Ill.—By Board of Local Improvements, for Hampshire st. sewer and also for sewers in Payson ave., to Henry Reas, at \$5,616 and \$7,000.

Muncie, Ind.—By city for construction of sewer in Hackley st. to S. S. Collins at \$887.50.

Baltimore, Md.—By Board of Awards, for constructing Jones Falls conduits, Section 2, storm water Contract 16, to Fisher & Carozzo, of Baltimore, \$703,989. Other bids as follows: Keystone State Construction Co., Philadelphia, Pa., \$715,046; Lane Bros. Co., Altavista, Va., \$754,001; Merrill-Ruckgaber Co., 30 Church st., New York, N. Y., \$827,575; Stamper, Ragland & Co., Richmond, Va., \$821,771; B. F. Sweeten & Son, Baltimore, Md., \$830,320; Metropolitan Construction Co., and Patrick McGovern, Boston, Mass., \$839,687; Sanford & Brooks, 24 Commerce st., Baltimore, \$892,868; S. Pearson & Son, 507 5th ave., New York, N. Y., \$1,025,384; J. F. Cogan & Co., 280 Bway., New York, N. Y., \$1,086,345.

Baltimore, Md.—By Board of Awards, for erection of revolving screens at sewerage disposal plant, to D'Oiler Eng. Co., of Philadelphia, Pa., for \$9,645.

St. Paul, Minn.—By Board of Public Works, for construction of sewer in Front st., to F. Peterson.

Kansas City, Mo.—For sanitary and storm sewer to be constructed to drain territory between Montgall, Indiana, 35th and 40th sts., to Williams & Samples Construction Co., of Kansas City, for about \$46,958. Pipe varying in dimensions from 10 in. to 40 in. will be used, and all under 30 in. will be of vitrified clay and above that monolithic concrete pipe.

Omaha, Neb.—For construction of brick sewer in district No. 445, to Katz Construction Co., at \$10,556.62, and for sewer in district 441, to Donahue & Peterson, at \$12,170.33.

Perth Amboy, N. J.—By City, for placing 18-in. pipe sewer in West Side ave., at \$1.50 per lin. ft., for furnishing manholes, at \$30 each, and receiving basins, at \$75 each, to Liddle & Pfeiffer.

Summit, N. J.—By City, for constructing Morris Turnpike sewer, to Pasquale Cestone, of Montclair, at following bid: 2,500 lin. ft. 12-in. vitrified pipe laid, including 12 "T" branches, excavation and backfill, \$1.25; 4,100 lin. ft. 10-in., 95c.; 500 lin. ft. 8-in., 75c.; 200 lin. ft. of house connections, 45c.; 2 junction drop manholes, concrete foundations, each, \$52; 23 line and drop manholes, concrete foundations, each, \$57, and 1 hand flush tank and concrete foundation, \$60; total, \$8,960. Totals of other bids: Chas. Ippolito, \$10,501; East Orange Construction Co., \$10,180; P. Muriello, \$13,305; R. Klockner, \$9,750, and M. Garafano, \$9,160.

Lestershire, N. Y.—By Board of Trustees for construction of Avenue A and Park st. sewers to Tomsky and Staata.

Morrisville, N. Y.—For construction of sewage disposal plant at State Agricultural School, to New York Sewage Disposal Co., at \$1,800. One other bid was that of L. J. Snell, of Dolgeville, at \$2,150.

Rochester, N. Y.—By Board of Contract, for construction of sewer in West ave. to Whitmore, Rauber and Vincius, at \$18,569, and for sewer on Parkway ave., to Thomas Holahan, at \$5,320.

Elyria, O.—To Ohio Eng. Co., for constructing sewers on E. River st., from 4th st. south to city limits, for \$7,485.

Youngstown, O.—By Board of Control, for construction of sewer in District No. 2 as follows: To Lewis Advasio, Youngstown, \$8,156. Other bids as follows: W. E. Gartland, Youngstown, \$8,226; Frank Manella, Pittsburgh, \$8,567; Prosser Construction Co., Carnegie, Pa., \$11,093.

Klamath Falls, Ore.—By Council, for fourth sewer unit contract to N. J. Chapman, at \$19,793. Another bid was Phipps & Simpson, at \$20,216.

Mont Alto, Pa.—For additions to sewage disposal plant of State Sanitarium, to Ley Construction Co., Pittsburgh, at \$7,844.02.

Richmond, Va.—By Committee on Streets, for two main trunk sewers for Washington Ward, to A. W. Maynard, at \$13,137.05 and \$32,989.50.

Huntington, W. Va.—By Commissioners, for sewer work on Main st., to H. C. Everett.

Wheeling, W. Va.—For laying sewerage system from old Hervey property on National rd. near Wheeling park to Big Wheeling creek to Springer & Stringer.

Guayaquil, Ecuador.—By Government of Ecuador, for financing and executing sanitary works in town of Guayaquil, to M. Edmond Colinet, of Paris, at \$9,650,000. Names of contractors for plumbing equipment may be obtained from Bureau of Manufactures, Washington, D. C.

BIDS RECEIVED

Monrovia, Cal.—By Board of Trustees of Monrovia for construction of extension to municipal sewer system: Watson & Spicer, Coronado, \$13,150; Mlagenovich & Gillespie, \$14,836; Lowell & Fucich, \$14,882; Giltner & Lee, \$16,986, and T. J. Shea, \$21,290. Bids were taken under advisement and contract will be awarded at the regular meeting.

Omaha, Neb.—For constructing sewers in Sewer District No. 445, as follows: (a) brick, (b) pipe: H. J. Cathroe, (a) \$12,217, (b) \$12,958; O. P. H. Con. Co., (a) \$14,337, (b) \$15,096; John C. O'Connell, (b) \$15,757; Jas. Jensen, (a) \$11,956, (b) \$12,892; Wm. Fitch, (a) \$11,642, (b) \$12,277; Donahue & Peterson, (a) \$12,177, (b) \$12,170; J. J. Hanighen Co., (a) \$14,216, (b) \$15,426; Arthur A. Dobson, (a) \$11,586, (b) \$11,611; Katz Con. Co., (a) \$10,166, (b) \$10,556.—George W. Craig is City Engr.

Syracuse, N. Y.—For constructing system of sewers in Huntley tract, which will be over 2 1/4 miles long, as follows: C. J. Sullivan, \$21,450; A. Sposato, \$23,384.20; C. T. Hookway, \$25,800; John Davin, Jr., \$23,199.50; Blanche Gaffey, \$23,113; James Swift, \$24,007. Other sewer construction bids were received as follows: Cregg and other streets, P. Thomas, \$3,279.75; A. Sposato, \$3,035.40; J. Swift, \$3,514.50; S. Bonn, \$3,343.50; B. Gaffey, \$3,147. First, North and other streets, J. Swift, \$3,230; C. J. Sullivan, \$2,694.25; C. Bonn, \$2,879.50; S. Bonn, \$3,191.50; B. Gaffey, \$3,177; P. Thomas, \$3,288; A. Sposato, \$2,519.75.

Akron, O.—For new sewer to be laid on Otto st., as follows: The Portage Engineering Co., \$11,990; The James J. Hunt, \$10,325.25; McAlonan Brothers, \$13,527.75; Walters & Russell, \$14,632.50; E. M. McShaffery, \$8,570.50.

Oklahoma City, Okla.—For constructing sanitary lateral sewers have been received as follows: (1) sewer to serve Blocks 24 to 34, inclusive; (2) Blocks 2 to 9; (3) Block 1; Dale additions, Lots 17 to 36; Mayfield-Shore Construction Co., (1) \$3,566, (2) \$4,635, (3) \$1,948; Stokes Construction Co., (1) \$4,188, (2) \$3,560, (3) \$1,738; Reinhardt-Donovan Co., (1) \$5,032, (2) \$4,458, (3) \$2,274; Deer & Broderick, (1) \$4,702, (2) \$4,146, (3) \$2,016; Hunter & Hunter, (1) \$4,108, (2) \$5,238, (3) \$2,090.

WATER SUPPLY

Bessemer, Ala.—Election will be held Nov. 27 for voting on purchasing water plant now owned by private company.

Piedmont, Ala.—Bonds value of \$25,000 have been voted for extension of city waterworks system and erection of power house and electric-light system.

Gravette, Ark.—City Council has passed ordinances for creating improvement districts for installing \$20,000 water system.

East Sacramento, Cal.—Residents are considering extension of water mains east of 31st st.

Huntington Park, Cal.—Bond election will be called Nov. 28 for voting on \$110,000 bond issue for constructing municipal water and electric plant, and for providing fire protection.

Modesto, Cal.—Water improvements are under consideration. Council contemplates better water system.

Santa Barbara, Cal.—State Board of Control has purchased bonds in amount of \$40,000, funds to be used to complete three-mile water tunnel, now being bored through Santa Ynez mountains to river.

Wray, Col.—Extensions to water mains have been authorized.

Waterbury, Conn.—Appropriation of \$5,000 will be made in 1912 for purchase of water meters.

Washington, D. C.—Orders have been issued by engineering department of District for laying of 1,300 ft. of 20-in. water mains along Wisconsin ave. and between Massachusetts ave. and Woodley rd. Two fire hydrants on existing 12-in. main are to be disconnected and reconnected with new 20-in. main. Improvement will represent outlay of \$4,600.

Washington, D. C.—District Commissioners have ordered extensive improvements to water main system. Orders include laying of 6,000 ft. of 8-in. and 2,500 ft. of 12-in. water mains.

Preston, Idaho.—Proposition to call election is being considered for voting on \$75,000 bond issue for installation of water system.

Evanston, Ill.—Water main extensions will be made in various streets.

Moline, Ill.—Board of local improvements has approved of water and sewer job for southeast bluff, to cost about \$5,279.

Peoria, Ill.—Peoria Water Co. is contemplating laying main to East Peoria for purpose of furnishing residents of that thriving municipality with water.

Rushville, Ill.—Rushville has voted in favor of bond ordinance calling for \$31,000 to be expended in construction of new water system.

Richmond, Ind.—Edward G. Campfield, representative of eastern syndicate which has submitted proposition to build Richmond water works system if franchise is granted it instead of company holding franchise at present, has notified city that unless his bid was accepted by Dec. 1 it would be withdrawn.

Duncombe, Ia.—Election will shortly be held for voting on installation of water system.

Waterloo, Ia.—Special meeting will be held on Nov. 9 for purpose of considering matter of renewing contract with Waterloo Water Co.

Leavenworth, Kan.—Engineers have nearly completed work of drawing up preliminary plans for proposed new municipal water plant, and are ready to enter upon work of surveying site for new works.

Pittsburg, Kan.—Bonds value \$40,000 will be sold for improving of water works plant.

Brookline, Mass.—Purchase of 155 8-in. water meters has been authorized.

Grand Rapids, Mich.—Bids will be received until 3 p. m. Nov. 13 by City Clerk for purchase of \$266,000 Water Refunding bonds. James Schriver, City Clerk.

St. Clair Heights, Mich.—Citizens have voted \$12,000 bond issue for water main extensions.

Hibbing, Minn.—Question of purchasing Brooklyn water mains and electric light line from A. P. Silliman is being discussed.

St. Paul, Minn.—Engineer of water board has submitted report advising expenditure of \$965,000 for improvements to water system.

Vicksburg, Miss.—Election will be held Jan. 23 for voting on \$40,000 bond issue for building new water works plant.

Maryville, Mo.—City is considering purchase of municipal water plant or erection of new one.

Purcell, Mo.—Funds are being raised for purpose of installing water system.

St. Louis, Mo.—Installation of water meters is recommended.

Redonia, N. Y.—City is considering improvements to water system; estimated cost, \$16,000.

Wellsville, N. Y.—Village board is considering new water system.

Cleveland, O.—O'Rourke Engineering Construction Co. has asked for contract to construct West Side water tunnel for \$966,655.

Dayton, O.—Bond ordinances have been passed by Council authorizing \$31,500 for extension of water works system.

Marion, O.—Council is considering repeal of resolution authorizing issuance of bonds for purchase of water works.

Swanton, O.—Village water works bonds in the sum of \$15,000 were awarded to Hoehler & Cummings, of Toledo, for \$15,693.75.

Eugene, Ore.—Bids will be received until 7.30 p. m. Dec. 11 by City Recorder for purchase of \$57,000 Water, Light and Power Bonds.—R. S. Bryson, Recorder.

Medford, Ore.—Voters have decided in favor of bond issue for installation of modern water system.

Erie, Pa.—Bids for pump to be installed by Board of Water Commissioners will be opened Dec. 6.

Winner, S. D.—Installation of municipal water works is being considered.

Wapato, Wash.—At regular meeting of Town Council city's 20-year municipal water works bonds were sold to State of Washington.

Janesville, Wis.—Question of purchase of water works by city will be voted on at next election.

Menasha, Wis.—Bond issue of \$40,000 has been authorized by Town Council for improvements to city water and light plant.

CONTRACTS AWARDED

Dorris, Cal.—By Town Trustees, to Moore Brothers, contract to install water system, at \$12,400.

Canon City, Col.—By Council, to J. R. Gordon, of Pueblo, for furnishing and installing water mains, at bid of \$22,950.

Mounds, Ill.—To O'Shea & Hogan, of Cairo, to build proposed water works in Mounds, at \$4,580.

Cedar Rapids, Ia.—For filtration plant, laboratory and storage room at pumping plant, to Loomis Bros., \$6,790. Other bids as follows: H. F. Jones, \$8,104; Theodore Stark, \$8,900; Brown & Mattas, \$9,300.

Glascow, Kan.—By City, for water works improvements, to the Des Moines Bridge &

Iron Co., Des Moines, Ia., for water works, and to the Chicago Bridge & Iron Co., 105th and Throop sts., Chicago, Ill., for tower and tank.

Brookline, Mass.—By Water Board, for coming year's supplies as follows: Gates and valves, Kennedy Manufacturing Co.; brass goods, Glauber Brass Manufacturing Co.; iron pipe, G. F. Uhler. In all but first case contract was awarded to lowest bidder, but lowest firm bidding on gates and valves failed to keep to board's specifications.

Lowell, Mass.—By City, for construction of new pumping station at boulevard, to Patrick O'Hearn, at \$22,494.

Muskegon, Mich.—By City, for cast-iron water pipe, to Lynchburg Foundry Co., at \$75,000, and to Glamorgan Pipe & Foundry Co., at \$50,000.

Lexington, Miss.—For construction of water works and sewers as follows: Sewers, Tonkawa Construction Co., Tonkawa, Okla.; pumping station, receiving basin and laying water mains, Hamilton Johnson, of Jackson; steel tower and tank, Memphis Steel Construction Co., Memphis, Tenn.; fire hydrants, R. D. Wood & Co., Philadelphia, Pa.; valves, The Fairbanks Co., New Orleans, La.; manhole castings, Columbian Iron Works, Chattanooga, Tenn.; and cast iron pipe, American Cast Iron Pipe Co., Birmingham, Ala.; total cost, about \$62,500.

Decatur, Neb.—For construction of water works as follows: General construction, Lana Construction Co., Harlan, Ia., \$9,480; engine, pump and installation of same, Fairbanks, Morse & Co., of Omaha, Neb., \$1,728.

Vernington, Nev.—By City Council, to American Light & Water Co., of Chicago, Ill., contract for water works, at \$31,940.

Charlotte, N. C.—By Board of Water Commissioners, to Whitted & White, of Charlotte, for 2 turbine Morris Machine Works pumps with a capacity of 3500 gal. a minute each, for \$3,767.

Vermillion, O.—For pump, engine and pipe connections, to P. F. Cavanaugh, local contractor at Vermillion. Pump is put out by Gould Co., of Chicago, and engine is to be 40-horsepower triplex, manufactured by Fairbanks, Morse & Co.

Portland, Ore.—By Water Department, to Crane Co., Chicago, Ill., for furnishing 160,000 lbs. of pig lead, at \$4.74 per 100 lbs.

Vale, Ore.—To Slick Bros. Construction Co., of Boise, Idaho, for construction of 20-mile canal of Ontario-Nyssa irrigation project, which will reclaim 10,000 acres of land.

Columbia, S. C.—To Carolina Construction Co. for extension of water mains, at \$2,042.85. Bid of Columbia Concrete Co. was \$3,134.75.

Kennebec, S. D.—For constructing steel tower and tank and 3600 ft. water main, to Des Moines Bridge & Iron Co., of Des Moines, Ia., for \$6,098. Engineers, Dakota Engineering Co., of Mitchell.

Newell, S. D.—By Secretary of Interior, Washington, D. C., to Pacific Coast Pipe Co., of Seattle, Wash., for construction of about 1,665 lin. ft. of 30-in. and 2,227 lin. ft. of 42-in. wood stave pipe, at \$5,013.

Hondo, Tex.—To Roach & Stansell, of Memphis, Tenn., to build 28 miles of canal in Medina County, together with erection of 2 reinforced concrete dams, 3 siphons and several concrete culverts and flumes for Medina County Irrigation Co. Total cost, about \$850,000.

Colonial Beach, Va.—For furnishing material and constructing water works and system of sanitary sewers and sewage disposal plant, to Newport Construction & Eng. Co., of Newport News, Va., at following bid: Sedimentation tank, \$4,590; 8-in. sewer, 3½-6 ft. deep, 38c.; 8-in. sewer, 6-8 ft. deep, 61c. and 68c.; 8-in. sewer, 8-10 ft. deep, 72c.; 8-in. sewer, 10-12 ft. deep, \$1.07; 8-in. sewer, 3½-6 ft. deep, 48c.; 12-in. sewer, under 6 ft. deep, 52c.; 12-in. sewer, 6-8 ft. deep, 78c.; 12-in. sewer, 8-11 ft. deep, \$1.06; 12-in. sewer, 11-15 ft. deep, \$1.58; encasing 12-in. sewer in concrete, 20c.; 15-in. sewer, 9-12 ft. deep, \$1.58; plain manholes, ea., \$45.60; drop manholes, ea., \$83; sump manholes, ea., \$79; lampholes, ea., \$9.09; flush tanks, ea., \$101; ejector station No. 1, \$874; ejector station No. 2, \$573; power house, \$3,000; boiler, \$610; air compressor, \$455; air receiver, \$90; feed water heater, \$78; feed pump, \$48; 2½-in. air main, per ft., 23c.; 2-in. air main, per ft., 18c.; inspection holes, ea., 23c.; 10-in. c.-i. pipe (lead), per ft., \$1.09; 8-in. c.-i. pipe (lead), per ft., 82c.; 6-in. c.-i. pipe (lead), per ft., 59c.; 4-in. c.-i. pipe (lead), per ft., 39c.; 10-in. c.-i. pipe (leadite), per ft., \$1.06; 8-in. c.-i. pipe (leadite), per ft., 78c.; 6-in. c.-i. pipe (leadite), per ft., 55c.; 4-in. c.-i. pipe (leadite), per ft., 36c.; 10-in. wood pipe, per ft., 97c.; 8-in. wood pipe, per ft., 70c.; 6-in. wood pipe, per ft., 52c.; 4-in. wood pipe, per ft., 39c.; well, 500 ft., \$1,100; add for each ft. over 500 ft., \$3.25; subtract for each

ft. less than 500 ft., \$2; total, including valves and hydrants, \$29,461.

Benwood, W. Va.—For sinking of new well in First Ward, to Ed. Riggs, of Moundsville.

Northfork, W. Va.—For constructing two 50,000-gal. concrete water tanks, to Wm. Rossi & Co., for \$6,905.

BIDS RECEIVED

Los Angeles, Cal.—For heating and ventilating plant at County Hospital, as follows: Thomas Hovarty Co., \$53,800; Klumoe & Jay Co., \$52,049; W. D. Nowell submitted bids ranging from \$52,032 to \$45,200. All the bids have been rejected. New specifications will be made and work readvertised.

Centralia, Ill.—For furnishing and laying water main extension to south limits of city as follows: Willard Bros., \$5,245; Fowler Bros., \$6,384; Hall & Co., \$5,413.14.

Boston, Mass.—By Supply Department for 11,000 gas mantle lamps for street lighting: United Gas Light Manufacturing Co., 90 cp., \$6.40; Ehrich & Gratz, Berlin, Germany, 120 cp., \$4.60 plus the 45 per cent duty, or \$6.67 net; Novelty Manufacturing Co., New York, 60 cp., \$6.

New York, N. Y.—For Contract 75, for construction of Bay Ridge Conduit, portion of city pipe lines of Catskill Aqueduct, City Aqueduct Dept., extending from junction of 36th st. and 5th ave., Boro. Brooklyn, in southwesterly direction, along 5th ave., 64th st., 4th ave., 67th st., and 2d ave. to 79th st., and through 79th st. to Shore rd. Work will include furnishing and laying about 16,400 ft. of 48-in. c. i. pipe, 36 ft. of 36-in. pipe, valves and other appurtenances for one year, as follows: F. V. Smith Construction Co., Lafayette ave., and Westchester Creek, New York, \$237,000; Murphy Bros., \$243,764; Joseph Burns, \$247,602; Seaboard Construction Co., \$255,636; McCauley Manufacturing Co., \$262,603; Cranford Co., \$264,897; Degnan Construction Co., \$265,369; M. E. Fox, \$266,372; Rodgers & Haggerty, \$269,483; Borough Development Co., \$270,643; United Engineering & Contracting Co., \$278,809.

Charlotte, N. C.—For water works improvements, as follows: For boilers, Casey Hedges Co., Chattanooga, Tenn., \$2,248; E. Keeler & Co., Williamsport, Pa., \$2,361; Walsh & Weidner Co., Chattanooga, Tenn., \$2,430; A. H. Washburn, Charlotte, \$2,377; R. D. Cole & Co., Newnan, Ga., \$2,438; J. S. Scofield Sons Co., Macon, Ga., \$2,473; Whitted & White, Charlotte, \$2,537; Phoenix Iron Works Co., Meadville, Pa., \$2,572; Alexander & Garsed, Charlotte, \$2,636. For pumps: J. H. McGowan, Cincinnati, O.; Alberger Pump Co., Atlanta, Ga.; Platt Iron Works, Dayton, O.; Warren Steam Pump Co., Warren, Mass.; American Well Works; Buffalo Steam Pump Co., Buffalo, N. Y., and Henry R. Worthington, New York. For valves: R. D. Wood & Co., Philadelphia, \$1,709; Asheville Construction Company, Asheville, \$1,719.41; Glamorgan Pipe & Foundry Co., Lynchburg, Va., \$1,725; Rensselaer Valve Co., Troy, N. Y., \$1,770.15; Darling Pump & Manufacturing Co., Williamsport, \$1,804.40; General Fire Extinguisher Co., Charlotte, \$1,807.80; Eddy Valve Co., Waterford, N. Y., \$1,916; Ludlow Valve Co., Troy, N. Y., \$2,024.

Cleveland, O.—For furnishing material and constructing West Side lake tunnel for Water Department, and 2 bids have been received, as follows: O'Rourke Eng. Construction Co., New York, N. Y., \$966,655 on concrete block construction, and the Holbrook, Cabot & Rollins Co., of New York, N. Y., \$1,559,661 on tunnel of concrete rammed-to-place type of construction.

Gresham, Ore.—For constructing water works distributing system: Jacobsen-Bade Co., Portland, Ore., \$15,057; James Kennedy Construction Co., Hillsboro, Ore., \$15,852; J. W. Morris, Portland, \$17,997; Keating & McLean, Portland, \$18,702. The itemized bid of the Jacobsen-Bade Co. follows: Excavating and backfilling, per cu. yd., 25c.; embankment, per cu. yd., 40c.; furnishing and laying c. i. pipe per lin. ft., 4-in., 52c.; 6-in., 80c.; 8-in., \$1.12; 10-in., \$1.43; 12-in., \$2.15; furnishing and laying 2-in. galvanized pipe, per lin. ft., 16c. furnishing and laying 4-in. drain tile, per lin. ft., 6c.; special castings, per lb., 5c.; hydrants, each, \$37; valves, each, 2-in., \$5; 4-in., \$10; 6-in., \$15; 8-in., \$15; 10-in., \$25; valve boxes, each, 5c.; galvanized T's 2 x 2 x ¾ with plugs, each, 50c.

Seattle, Wash.—For 4th ave., South, water mains: Jahn Construction Co., \$14,539.52; C. F. Graff, \$14,730.36; Sparger Concrete Co., \$13,922.60; T. Ryan, \$14,973.24; J. L. Ritchie, \$14,037.96; Washington Construction Co., \$14,803.40; Nelson & Carlson, \$17,053.70; American Contracting Co., \$14,824.60.

Sheboygan, Wis.—For furnishing, delivering and erecting complete on foundations

furnished by city an 8,000,000-gal. pumping station, as follows: Fred M. Prescott Steam Pump Co., West Allis, triple D.A., \$12,500, and C.C.C., \$17,800. Nordberg Mfg. Co., Milwaukee, C. C. C., \$22,500; triple Corliss, \$26,975, and triple Poppet, \$34,190. Allis-Chalmers Co., Milwaukee, \$19,740. Coburn Co., of New York, N. Y., C. C. C., \$23,120, and triple, \$25,500. Osburn Co. and Epping-Carpenter Co., New York, N. Y. (3 bids), \$20,400, \$21,130 and \$14,825, and Osburn Co., \$7,550.

LIGHTING AND POWER

Piedmont, Ala.—Bonds value of \$25,000 have been voted for erection of power house and electric light system and for extension of water works system.

Huntington Park, Cal.—Bond election will be called Nov. 28 for voting on \$110,000 issue for constructing municipal electric plant and water works and for providing fire protection.

Martinez, Cal.—Representatives of Pacific Gas & Electric Co. will ask Board of Supervisors for franchise to lay their pipes through streets of county.

Oroville, Cal.—Electric power company that has been supplying Oroville and nearby dredger mining field with electricity for years has authorized bond issue of \$10,000,000 for purpose of installing another plant, larger than present one, and to extend its distributing system to Marysville, Sacramento and the Bay region.

Roseville, Cal.—City is preparing to acquire, by purchase or auction, municipal power and lighting system.

Sacramento, Cal.—State Board of Control has rejected all bids for boilers and other apparatus for Stockton State Hospital, involving sum of about \$20,000, and same will be readvertised. Bidders were C. Moore Co., Union Iron Works, United Iron Works, California Hydraulic & Engineering Supply Co. and Pacific Fire Extinguisher Co.

Seaford, Del.—Council has agreed to continue use of electric lights on streets for one year.

Washington, Ga.—Site for new electric light plant has been purchased and all-day current will be furnished. Cost is estimated at \$30,000.

Richmond, Ind.—Board of Public Works has decided to install two arc lights on New Paris pike, between 14th and 19th sts., and place lights on corners of Maple and West 5th sts., South 8th and L sts. and North 21st and F sts.

South Bend, Ind.—New gas lights will be installed in River Park soon, bids having been received by Board of Public Works in South Bend. Contract will be let soon.

Prairie City, Ia.—The Colfax Electric Light & Power Co., of Colfax, has secured franchise to operate electric light and power plant in Prairie City for period of 25 years. Company will erect transmission line from Colfax.

Van Horne, Ia.—Citizens have voted to issue \$10,000 bonds for construction of municipal electric light plant.

Springfield, Mass.—Proposition for lighting Bridge St., between Chestnut and Main Sts., with high power gas lights is under consideration.

Duluth, Minn.—Election will be held Feb. 6 for voting on proposition to bond city for \$700,000 for construction of municipal electric light, heat and power plant.

Hibbing, Minn.—Question of purchasing Brooklyn electric light line and water mains from A. P. Silliman is being discussed.

Spring Lake, N. J.—New water system has been established, and it is probable that municipal lighting plant will be operated in connection with water pumping plant.

Cortland, N. Y.—Conduit Electric Co., of Syracuse, is lowest bidder for electric wiring and fixtures for Cortland State Normal School, at \$6,984. Other bidders: Frost & Sheldon, Albany, \$7,200; E. Joy Co., Syracuse, \$7,256; J. F. Jackson, N. Y. City, \$7,665; Buffalo Electric Contracting Co., Buffalo, \$7,785; and Wheeler & Green Co., Rochester, \$7,883.

Little Falls, N. Y.—City is considering question of municipal lighting plant.

Oneida, N. Y.—Local lighting company's bid for lighting city for one, three or five years from Jan. 1 next, as opened by the Board of Public Works, calls for \$75 per light for all night lights and \$50 per light for 1 o'clock lights. This is advance of more than 50 per cent over price of present contract. Board has not yet awarded contract.

Rochester, N. Y.—Question of permanent illumination of Main st. is being discussed.

Toledo, O.—Resolution has been passed for improving Ontario st. with electric lighting.

Ponca City, Okla.—Bonds in sum of \$30,000 have been voted for erection of electric light plant.

Eugene, Ore.—Bids will be received until 7.30 p. m. Dec. 11 by City Recorder for purchase of \$57,000 Light, Power and Water Bonds.—R. S. Bryson, Recorder.

Altoona, Pa.—Three ordinances authorizing additional street arc lamps have been passed.

Sharon, Pa.—Bond election will be held for installation of municipal electric light.

White, S. D.—Franchise has been granted to E. A. Harseim to install electric light plant.

Menasha, Wis.—Bond issue of \$40,000 has been authorized by Town Council for improvements to city light and water plant.

Milton, Wis.—Milton Water, Light & Power Co. is incorporated to furnish village with electric light and power.

CONTRACTS AWARDED

San Francisco, Cal.—By Board of Public Works, for lighting fixtures to be installed in Hall of Justice to Adams & Holloper, at \$14,395.

Yreka, Cal.—By Trustees, for erection of electroliners on Miner st., to A. E. Tunker, at \$1,478.

Wallingford, Conn.—For addition to 2-story brick, municipal electric lighting plant, to C. F. Wooding Co.

Cambridge City, Ind.—By Town Council, for construction of new municipal electric light plant, to Roy Kiese, of Cambridge, for \$4,087.

Glasco, Kan.—By city to L. K. Green, Concordia, Kan., for transmission line between Glasco and Concordia.

St. Paul, Minn.—For furnishing flaming arc lamps, by Board of Public Works, to St. Paul Gas Light Co.

Thief River Falls, Minn.—By City Council, for installing internal combustion oil engines instead of steam engines as motive power in city's new light plant and for equipping plant with two Diesel 225-hp. engines and 2 direct 150-kw. generators, to Northwestern Electric Equipment Co., of St. Paul; the plant will cost about \$50,000.

Butte, Mont.—By Board of County Commissioners, for furnishing lighting fixtures for new county court house, to Butte Electric & Supply Co., Butte.

Columbus, O.—By City, for installation of cluster lighting system for part of business section, to Erie Co., at cost of over \$100,000.

Columbus, Ohio.—For furnishing iron standards for new cluster light system to be installed on principal streets of Columbus, to O'Brien Bros. Foundry Co., at \$24,499. Contract for wiring was awarded to Erie Co., Erie, Pa., at \$67,505.

Chatham, Va.—By Town Council to F. L. W. Bryant, of Thomasville, N. C., franchise for electric light.

Tacoma, Wash.—By Tacoma Gas Co., for erection of 1,000,000 cu. ft. gas tank, to Stacey Manufacturing Co., of Cincinnati, O.

FIRE EQUIPMENT

Oakland, Cal.—Board of Town Trustees has requested prices on chemical engine and hook and ladder outfit for fire department.

Pensacola, Fla.—Plans will be drawn by Architect W. D. Willis for erection of fire station.

West Palm Beach, Fla.—Voters have authorized \$6,000 bond issue for fire department.

Gary, Ind.—Bond issue of \$50,000 has been sold for construction and equipment of new fire stations.

Indianapolis, Ind.—City is considering erection of new police and fire headquarters building.

Rosedale, Ind.—City will purchase new gasoline fire engine.

South Bend, Ind.—A 50-horse-power fire chemical has been purchased by Board of Public Safety of the Rambler Automobile Co., of Kenosha, Wis., at cost of \$5,500.

Leavenworth, Kan.—City is considering improvements to fire department.

Baltimore, Md.—Fire Board is considering purchase of auto fire apparatus for local department.

Taunton, Mass.—Municipal Council has adopted order appropriating \$5,500 for purchase of motor fire truck.

Charlotte, Mich.—Petition has been received asking for new auto fire engine.

St. Clair Heights, Mich.—Citizens have voted \$4,000 bond issue for additional fire protection and village hall.

Duluth, Minn.—Commissioner Hart and Chief Randall have been appointed as committee by Board of Fire Commissioners to locate site for fire hall on Oneonta st. It is planned to have new hall serve district between No. 2 at 18th ave. and West and 2d sts., and hall in West Duluth.

Thief River Falls, Minn.—Purchase of steam fire engine is under consideration.

Camden, N. J.—Ordinance has been passed authorizing issuance of bonds to amount of \$25,000 for purpose of purchasing land and

erecting building or buildings and equipping same with apparatus necessary for fire department purposes.

Monessen, N. J.—Installation of fire alarm system and other improvements are under consideration.

Princeton, N. J.—New 6-cylinder automobile fire engine will soon be added to Fire Department to take place of Mercer Engine No. 3, on Chambers st. Machine will have capacity of 500 gal. per minute and will cost \$7,500. It will be fitted with 500 ft. of hose, scaling and extension ladders and three hand chemical tanks.

Roselle Park, N. J.—Purchase of 300 ft. of hose is recommended for fire department.

South Orange, N. J.—Appropriation of \$5,000 for automobile fire truck is being discussed.

Ventnor City, N. J.—City is considering bids for combination pumping engine, chemical and hose wagon.

Gouverneur, N. Y.—Purchase of chemical engine for fire department is being considered.

Ogdensburg, N. Y.—Fire Committee of Common Council has requested Board of Education to defer action on sale of No. 9 school building in Knox st. until it has had time to consult with Mayor on advisability of city retaining this property as site for central fire station.

Syracuse, N. Y.—Purchase of 1,000 ft. of hose is under consideration.

Yorkville, N. Y.—Erection of new engine house on Main st., between Whitesboro and Bridge sts., has been authorized; cost, \$5,500.

Belfield, N. D.—Village will hold special election to determine whether or not village will be bonded in amount of \$10,000 to secure money for purchase of fire apparatus, erect town hall and make other improvements.

Akron, O.—Council is considering resolution for new \$15,000 fire station.

Cleveland, O.—Thirty-two bids were received by city for construction of automobile fire engine house on Ashbury ave., N. E. Lowest bidder was Cleveland Fireproofing Construction Co., at \$15,975.

Massillon, O.—Bond ordinance of \$8,000 will be voted on for installation of motor-driven machines in engine houses Nos. 1 and 2.

Philadelphia, Pa.—Plans have been completed for new combined police and fire station, auto-patrol garage and mounted police stables, to be built at 55th and Pine sts., at approximate cost of \$100,000. Fire house fronting on Pine st. will consist of combination engine and chemical station, with auto garage stables on 55th st. side.

Spring Grove, Pa.—Petition has been received by Council asking for purchase of new chemical engine.

Terrell, Tex.—Purchase of auto fire engine, to cost \$7,500, has been authorized by City Commission.

Spokane, Wash.—Bids have been rejected for new signal system for fire and police departments. New specifications will be prepared.

Walla Walla, Wash.—Purchase of 1,000 ft. of hose has been authorized for fire department.

Martinsburg, W. Va.—Installation of fire alarm system is being recommended.

CONTRACTS AWARDED

Venice, Cal.—To Pope-Hartford Co., for auto engine at their bid of \$5,750.

Omaha, Neb.—To Knox Automobile Co., for new six-cylinder 80-horsepower fire auto, at \$5,400.

Holyoke, Mass.—By Fire Commissioners, for purchase of two aerial ladder fire trucks, to American La France Engine Co., of Elmira, N. Y., at \$10,000.

Eveleth, Minn.—To Theo. Nauffts, of Duluth, to erect fire hall, at \$15,700.

Buffalo, N. Y.—By Fire Commissioners, to United & Globe Rubber Manufacturing Co., for purchase of 1,000 ft. of fire hose at 90c. per foot.

Newburgh, N. Y.—By Fire Department, for furnishing 2,000 ft. of hose, to Fred Herman's Sons. Hose to be the Vulcan, guaranteed to withstand pressure of 400 lbs.

Dallas, Tex.—By City Commissioners, for improvements to cost about \$6,500 at five fire stations, to Klein Bros., at following prices: For re-enforced concrete driveways, at 17c. a sq. ft.; flooring, at 14c.; foundations for trucks, at 25c. a cu. ft.; laying of 6-in. tile, at 30c. a lin. ft., and the building of drains, at cost, plus 10 per cent.

BIDS RECEIVED

Washington, D. C.—For furnishing 1,000 ft. of 2½-in. rubber hose: Voorhees Rubber Mfg. Co., 38 Vesey st., New York City, \$1,100; Peerless Rubber Mfg. Co., 16 Warren st., New York City, \$1,000; Washington Rubber Co., Washington, D. C., \$1,250; Melville D. Lindsay, Washington, D. C., \$935; James B. Lambie Co., Washington,

D. C., \$1,250; Cary Machinery & Supply Co., Baltimore, Md., \$1,080; Eureka Fire Hose Mfg. Co., Philadelphia, Pa., \$1,100; National Electrical Supply Co., Washington, D. C., \$1.10 per ft.; B. F. Goodrich Co., Akron, O., 92c. per ft.; James Boyd & Bro., Philadelphia, Pa., \$1,100; C. C. C. Fire Hose & Rubber Co., Boston, Mass., \$1,100.

Toledo, O.—For 2,000 ft. of hose, as follows: The Toledo Rubber Co.'s bids were: Pennant, 75c.; Fire Model, 85c.; Over-All, 95c.; Extra Heavy, \$1.05; Unique, \$1.15; Keystone, \$1.05; Horseshoe, 95c., and A. A. Knit, 95c. M. I. Wilcox Co., Eureka, \$1.15; Paragon, \$1.05; Monitor, 95c.; Peerless, 90c., and Superior, 90c. Union Supply Co., Goodrich, 95c. and 90c.; Chieftain, 75c. C. C. C. Fire Hose & Rubber Co., Canton Junction, Mass., Standard, \$1. B. Lateral Fire Hose Co., Chicago, Progress, \$1.

BRIDGES

Chico, Cal.—Five steel bridges are to be constructed over drains on Gianella rd., north of town. Supervisor Robert Holmes states that they will vary in length from 16 to 40 ft. and will cost, with concrete abutments, total of \$1,500.

Woodland, Cal.—Board of Supervisors has passed resolution providing for construction of seven concrete bridges.

La Junta, Col.—County Commissioners are considering plans for constructing concrete bridge over Arkansas River, between North La Junta and Ja Junta, to cost about \$50,000.

Jacksonville, Fla.—Bids for construction of Duval County's portion of Nassau River bridge have been thrown out, and re-advertisement will be made by County Engineer.

Goshen, Ind.—County Commissioners have asked for appropriation of \$45,000 to construct bridge over St. Joseph River.

Indianapolis, Ind.—Board is considering erection of bridge across White River at New York st.

Lake Charles, La.—Construction of \$50,000 wagon bridge across Calcasieu River is being considered.

Kansas City, Mo.—City Engineer has estimated cost of constructing viaduct from 19th st. and Kansas ave. to 24d and Brook sts., at \$300,000.

Hackensack, N. J.—Plans are being prepared for bridge over Hackensack River from Ridgefield Park to lower Hackensack. Estimated cost, \$150,000.

Newark, N. J.—The Snare & Triest Co., of New York, was lowest bidder, at \$268,700, for construction of proposed new bridge over Passaic River at Bridge st., and will probably be awarded contract. Joseph Murphy & Sons', of Harrison, bid was \$378,000.

Toledo, O.—Service Director Cowell has been authorized by Council to advertise for bids on bascule lift for Cherry st. bridge and award contract to lowest bidder. Estimated cost of bascule lift is \$142,000 under present plans.

Ellwood City, Pa.—Construction of bridge over Connoquenessing River connecting Hazel Dell and Ellwood City is contemplated.

Petersburg, Va.—Proposition to erect bridge to take place of Bishop's bridge also embraces as a corollary erection of concrete bridge in place of wooden trestle which now connects city with Pocahontas; estimated cost \$31,000 and \$5,000 respectively.

Green Bay, Wis.—Preliminary plans have been prepared for construction of new bridge across Fox River at Mason st.

CONTRACTS AWARDED

Red Bluff, Cal.—By Supervisors of Tehama County, to Pacific Bridge Co., San Francisco, for constructing steel bridge over Coyote Creek, at \$6,223.

Wallace, Idaho.—For constructing 370-ft. wood and steel bridge over north fork of Coeur d'Alene River, to Myron Topliff, for \$4,786.

Saginaw, Mich.—By city for superstructure of Johnson st. bridge to Penn Bridge Co., of Waverly, Pa., for \$49,889 for full-length bridge, and \$41,487 for 430-ft. structure.

Kansas City, Mo.—By Board of Public Works, for construction of ornamental reinforced concrete arch bridge over Brush Creek at Wornall rd., to T. H. Stone, Reliance Bldg., Kansas City, Mo., for \$10,600.

Brookhaven, Miss.—By Board of Supervisors, for construction of steel and concrete bridge across Bogue Chitto Creek, to F. H. Alsbury & Co., of Houston, Tex., at \$2,850.

Isleta, N. M.—For constructing two steel bridges over Rio Grande River, to Patterson-Berghardt Construction Co., of Denver, Col., for Isleta Bridge, \$27,964, and San Felipe Bridge, \$12,474.

Theodore, Utah.—By Department of Interior, at Washington, D. C., for construction of bridge across Duchesne River, near Theodore, to the Omaha Structural Steel Co., of Omaha, Neb., for \$5,975.

MISCELLANEOUS

San Francisco, Cal.—Finance Committee of Supervisors have agreed to allow Park Commission \$6,000 for placing convenience comfort station at junction of Sloat boulevard and Great Highway, and \$4,000 for one in Mission Park. Playground Commission was allowed \$2,500 to arrange playground for children at Hamilton Square. An allowance of \$10,000 was made for a cement coping and artificial stone sidewalks around Holly Park.

Macon, Ga.—Bids will be advertised for alterations in basement of auditorium.

Indianapolis, Ind.—Board of Public Works will readvertise in few days for bids for contract for removing and disposing of garbage after May 26, 1912, for probably a period of six years.

Chicago, Ill.—Voters will decide if city shall have new \$300,000 contagious disease hospital.

Bay St. Louis, Miss.—Board of Supervisors of Hancock County has sold \$25,000 bonds to Hancock County Bank.

Vicksburg, Miss.—Report of Special Committee favoring special election to be held here Dec. 12 to vote on proposed bond issue of \$50,000 for city high school, and also special election for voting \$10,000 bond issue to build new water works plant, which would be owned and operated by city, and \$100,000 to improve streets, to be held Jan. 23, has been approved by City Council.

Binghamton, N. Y.—Trustees of Board of Charities are considering erection of new building in which to install offices of Organized Charities.

Yonkers, N. Y.—Special meeting of Board of Estimate and Apportionment has been held for purpose of approving sale of \$50,000 bonds for construction of tuberculosis hospital, to Kissell, Kunneutt & Co.

Toledo, O.—Ordinance providing for securing of data on diversion of Swan Creek at cost of \$1,000 received its third reading before Council. Work will be done by Engineer W. J. Sherman.

Harrisburg, Pa.—With Mayor's signature added to Common Council ordinance providing for vacation of certain streets in

Eight Ward so that Capitol Park may be extended, State will be free to carry out plans of Legislature.

Chattanooga, Tenn.—Plans are being prepared by Architects Barnwell & Jones for Hamilton County's new or remodeled jail on site of present structure on Walnut st.

Fort Worth, Tex.—City Commission is considering erection of public underground comfort station on Peter Smith Triangle near City Hall, at cost of \$11,000.

Portsmouth, Va.—Bids will shortly be advertised for construction of new municipal building on Court st.; estimated cost, \$30,000.

Richmond, Va.—Special Committee on Mayo Bridge has recommended to Council new plan of approaches from bridge on either side to Mayo's Island, to cost \$3,500, in lieu of one hitherto agreed upon, estimated cost of which would have been \$4,200.

CONTRACTS AWARDED

Jacksonville, Ill.—By Illinois State Board of Administration at Springfield, to Wm. C. McCullough, of Jacksonville, for construction of 3-story brick addition to nurses' home at Jacksonville State Hospital for Insane, for \$37,700. Other bidders were: Jos. De Goveia, of Jacksonville, \$37,747; M. G. Fernandes, of Jacksonville, \$38,505; Fitzsimmons & Wheeler Construction Co., of Springfield, \$39,972; N. H. Shields, of Danville, \$42,400; J. F. Duncan & Co., of Springfield, \$43,757; John W. Evans' Sons Co., of Bloomington, \$47,553.

Council Bluffs, Ia.—By city for digging Honey Creek extension ditch to Lava Construction Co., of Harlan, at \$21,490. Work consists of four sections, and successful bid was for 6½c. on section 1, 8c. on section 2, 9c. on section 3, on excavation work, and \$10 per cu. yd. on concrete work on section 4. Other bids as follows: Moeller Bros., 12.97c. per yd. on excavation in section 1 only; C. A. Hoag, 11c. per yd. on excavation in section 3 only; Forrester & Downey, 9.94c. per yd. on excavation in sections 2 and 3; E. A. Wickham, 10.9c. per yd. on all excavations; C. H. Sternberg & Sons, 9.4c. per yd. cash, or 9.45c. per yd. in warrants on all excavation, and \$6.05 and \$6.75 on concrete work; Hamlin Construction Co., 10c. per yd. in sections 1 and 2, and 12½c. in section 3, on excavation, and \$12.50 per yd. for concrete work; R. S. Morrow, 10.67c. per yd. for excavation in section 3 only.

New Providence, N. J.—To Metzger & Wells, of Philadelphia, Pa., for group of 9 buildings, to cost about \$75,000, for Bonnie Burn Sanitarium, near New Providence, N. J.

Rochester, N. Y.—By Board of Contract, for construction of granite steps at Cobbs Hill reservoir, to Whitmore, Rauber & Vicinus, at \$2,331.

Philadelphia, Pa.—By Department of Public Safety for restoration of Congress Hall on Sixth and Chestnut sts., to Edward Fay & Son, at \$6,800.

Nashville, Tenn.—By Hospital Commission, for erecting 2-story wing to City Hospital; cost, \$50,000; General contract, to Geo. Moore & Sons, 1521 8th ave. S.; foundation work, to W. H. Peebles; ventilating, plumbing and heating systems, T. J. Mooney & Co.

Shoshone, Wyo.—By Secretary of Interior at Washington, D. C., to Lynn & Arnoldus, of Lowell, Wyo., at \$33,541, for construction of culverts and ditches in vicinity of Powell and Garland, Wyo., in connection with drainage system of Shoshone Irrigation project. Work involves excavation of about 175,000 cu. yds. of material and construction of about 2000 lin. ft. of wooden box culverts.

A New York Office for \$36 a Year

Location Value—The Metropolitan Bldg., in the heart of New York's business district.

Advertising Value—A New York address and telephone number on your stationery, name in telephone directory.

Agency Value—A competent, energetic business man to act as your personal representative in your absence.

Personal Value—A private desk, a private office handsomely furnished, telephone and stenographic service.

Results—Many lease holders have done business enough in one week through our service to more than pay for a year's rental.

Write for complete information

International Service Corporation
Metropolitan Bldg., New York



A Corner in Main Office

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO.
STREET IMPROVEMENTS				
Kansas.....	Ottawa.....	Nov. 15, 7:30 p.m.	Constructing 5,400 sq. yds. macadam.....	W. T. Wood, Mayor.
New Jersey.....	New Brunswick..	Nov. 16, 2 p.m.	Building road.....	Board Freeholders.
California.....	Oakland.....	Nov. 20, 11 a.m.	Constructing miscellaneous roadwork including sidewalks.....	F. R. Thompson, City Clerk.
Ohio.....	Cleveland.....	Dec. 2, 11 a.m.	Constructing culverts in Falls Road.....	County Committee.
Indiana.....	Greencastle.....	Dec. 2, 11 a.m.	Constructing 6 miles macadam and gravel roads, 5 contracts.....	D. V. Moffett, County Auditor.
Indiana.....	Crawfordsville..	Dec. 5, 10 a.m.	Improving roads in Coal Creek township.....	B. B. Engle, County Auditor.
Indiana.....	Vincennes.....	Dec. 5, 2 p.m.	Constructing gravel roads, 3 contracts.....	J. T. Scott, Auditor Knox County.
Texas.....	Galveston.....	Nov. 27, 11 a.m.	Grading 2 miles road and furnishing 3,100 cu. yds. shells.....	J. M. Murch, County Auditor.
SEWERAGE				
Indiana.....	Evansville.....	Nov. 18, 10 a.m.	Constructing 15 and 18-in. sewer.....	S. A. Bartholemew, Clerk.
New York.....	Albany.....	Nov. 20, 3 p.m.	Constructing clay pipe sewer.....	Board Contract and Supply.
New York.....	Troy.....	Nov. 17, 11 a.m.	Constructing sewer in Excelsior avenue.....	Board Contract and Supply.
WATER SUPPLY				
Massachusetts...	Lowell.....	Nov. 23, 10 a.m.	Furnishing 9, 12 to 30-in. gate valves.....	E. F. Foye, Chief Supply Dept.
Indiana.....	Richmond.....	Nov. 18.....	Constructing reservoir 36 x 37 ft.....	D. S. Coe, County Auditor.
Oklahoma.....	Chandler.....	Nov. 21, 7 p.m.	Drilling artesian well.....	J. B. Foster, City Clerk.
Maryland.....	Cumberland.....	Dec. 1, noon.....	Constructing water-works.....	Evitts Creek Water Co.
BRIDGES				
Ohio.....	Wapakoneta.....	Dec. 2, 11 a.m.	Constructing superstructure.....	A. E. Schaefer, County Auditor.
Ohio.....	St. Clairsville..	Nov. 20, 1 p.m.	Constructing concrete and stone bridge.....	Emerson E. Campbell, County Aud.
LIGHTING AND POWER				
Ohio.....	Freemont.....	Nov. 21, noon.....	Lighting streets with gas or electricity for a term of 10 years..	Director Public Service.
Illinois.....	Decatur.....	Dec. 28.....	Furn. engine and 100 KW generator, switchboard and other equipment.....	Albert Leach, City Clerk.
Kentucky.....	Louisville.....	Jan. 4, noon.....	Installing lighting equipment in hospital.....	Hospital Committee.
FIRE EQUIPMENT				
Ohio.....	Marion.....	Nov. 23, noon.....	Furn. automobile pumping engine, combination chemical and hose wagon and chief's car.....	J. A. Knapp, Dir. Pub. Safety.
New York.....	Raybrook.....	Nov. 28, 10 a.m.	Constructing fire escapes and fire wall.....	Board Trustees.
MISCELLANEOUS				
Massachusetts...	Haverhill.....	Nov. 29, 1 p.m.	Installing heating and ventilating system in City Hospital....	J. W. Harris, Dept. Pub. Property.

STREET IMPROVEMENTS

Oakland, Cal.—Resolution has been passed ordering laying of sidewalks of various streets.

Pomona, Cal.—Resolution has been adopted for improvement of E. 2d st., from Louisa st. to San Antonio ave.

Bridgeport, Conn.—Common Council has adopted report of Committee on Streets and Sidewalks, ordering the widening of North ave., from Main st. to Whitney ave.

Washington, D. C.—Hughes ct., between 25th and 26th sts. northwest, and Navy pl., between 6th and 7th and I and G sts. southwest, in accordance with policy of Commissioners to eradicate overpopulated courts and alleys of city, will be converted into minor streets.

Council Bluffs, Ia.—Ordinance is being drawn up for establishing new grade on 5th ave., between Clark and Park aves.

New Orleans, La.—Appropriation of \$3,000 has been asked for maintenance of Gentilly rd.

Baltimore, Md.—Bids are being received for paving around Fifth Regiment Armory by Board of Awards.

Elizabeth, N. J.—Board of Freeholders has passed three resolutions calling for macadamizing of Newark ave., from junction with N. Broad st. to city line; Westfield ave. and Broad st.

Plainfield, N. J.—Board of Freeholders has adopted resolution providing for laying of macadam pavement in South ave., from Richmond st. to city line.

Niles, O.—Paving of Linden ave. is under consideration; also grading of Lafayette st., from Robbins ave. to Davis st.

Rocky River, O.—Bids will be received until 12 noon, Dec. 11, at office of Clerk, for purchase of street improvement bonds for improving Wooster rd., in sum of \$2,800. W. M. Dean, Clerk.

Youngstown, O.—Ordinance providing for grading of Mercer st. has been passed finally, and one for Midland ave. grading and Richland ave. grading passed second reading.

Ferndale, Pa.—Ordinances have been passed establishing lines and grades of Station st., from Moxham ave. to Vickroy ave.

Port Allegany, Pa.—Borough Council is considering proposition to pave Main and Mill sts. in business section of town. Cost is estimated at about \$10,000, and should Council decide favorably on proposition, special election will have to be held to authorize bond issue for necessary funds.

Greenville, Tex.—Greenville City Council has signed papers for paving E. Lee st., from public square to Cotton Belt and Texas Midland depots, and work will begin soon.

Lynchburg, Va.—Common Council has adopted ordinance providing for bond issue of \$650,000 for street improvements.

Norfolk, Va.—Common Council has adopted ordinance providing for repaving of Church st., which embodies contract with Virginia Railway & Power Co. to divide cost of new pavement which, with other improvements, will be \$83,000. City's share is \$45,500.

Richmond, Va.—Resolution has been passed appropriating \$2,290 for smooth paving portion of Belvidere st., between Broad and Grace sts.

Wheeling, W. Va.—At special meeting of Council it was agreed to readvertise for bids for paving of Waynesburg and 8th sts.

CONTRACTS AWARDED

Oakland, Cal.—By City Council, for construction of concrete culvert in Vicksburg ave., etc., to Dakin Construction Co., at following prices: 33 in. x 36 in. concrete culvert, per lin. ft., \$3.70; 16-in. pipe conduit, per lin. ft., \$1.75; 18-in. pipe conduit, per lin. ft., \$2.10; storm water inlet, 10 in. x 36 in. opening each, \$48; brick manhole with inlet top, \$55; concrete manhole with inlet top, \$80.

Oakland, Cal.—By City Council, for grading, curbing and paving of E. 31st st. and Bruce st. to L. L. Page, at following prices:

Grading street, including sidewalk (cutting) 40 cts. per cu. yd.; macadamizing oil-macadam, 9¼ cts. per sq. ft.; curbing with redwood, 14 cts. per lin. ft.; gutters, grouted, 15 cts. per sq. ft.

Pomona, Cal.—By city, for paving on E. Holt ave., from San Antonio ave. to Reservoir st., to W. J. Brand, of Riverside, at following prices: Grading, macadamizing and oiling, per ft., 10½ cts.; curbing, per lin. ft., 30 cts.; guttering, per sq. ft., 13 cts.; culvert, \$3; crosswalk, \$16.50. One other bid was received: Louis Ferrill, grading, macadamizing and oiling, per ft., 11½ cts.; curbing, per lin. ft., 35 cts.; guttering, per sq. ft., 15 cts.; culvert, \$4.75; crosswalk, \$16.50.

Muncie, Ind.—By County Commissioners, for construction of Scott Kelley gravel road, between Delaware and Madison Counties, to Derelius Trout, at \$1,540.

Omaha, Neb.—By city, for grading of 44th st., from Jones to Leavenworth, to Kierle Construction Co., at 24¼ cts. per cu. yd.

Cincinnati, O.—By County Commissioners, for improvement of Forfeit Run rd., from Harrison pike to Thompson rd., to M. Pope, at \$15,633.50.

Spokane, Wash.—By City Commissioners, for improving Sumner ave., from Rockwood blvd. to Grand blvd., to H. L. Lillenthal, at \$5,700.

SEWERAGE

Sacramento, Cal.—Resolutions will probably be adopted at meeting of the City Trustees asking State Board of Health for permit to allow Sacramento to continue to discharge its sewage into Sacramento River.

Bridgeport, Conn.—Common Council has voted to adopt Hering system of sewerage in building two sanitary sewers, one from Dewey st. to Madison ave., and other from Read st. to Boston ave., in east end.

Centralia, Ill.—No bids were received for sewer extension in eastern part of city, and same will be readvertised.



I AM CONVINCED

GLAUBER Curb and Corporation Cocks are Trouble Proof, Leak Proof, and the greatest value for the money. That's what they ALL say after a try-out.

GLAUBER BRASS MFG. CO., Cleveland, Ohio

